

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

NEW SERIES.

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Practical Husbandry.

How to Improve Worn-out Lands.

EDITORS CULTIVATOR—The subject of improving old lands, is one fraught with such interest to farmers occupying the eastern and part of the middle and southern States, that there is little danger of too much being said about it, provided what is said is of a practical nature. Before proceeding to the details of the subject, I wish to call attention to a fact which appears for the most part to have been too much overlooked in this country. It is, that a certain amount of capital is always required to conduct successfully a certain number of acres. ARTHUR YOUNG, in his *Farmer's Calendar*, gives the amount of capital, laborers, utensils, &c. &c. necessary, or supposed to be necessary, to conduct successfully an English farm, but this data would perhaps be of little use in this country. There is no greater barrier within my knowledge, to the success of our farmers, than this same want of capital. So far from having means at their command, we find, on looking around us, in many sections of the country, our farmers heavily in debt, and paying a heavy interest. Their resources, therefore, are hampered in the start; and nothing but hard labor, and the most rigid economy, enables them to get hold of anything with which to improve.

To what cause are we to attribute this want of means? Is it because farmers are in very many instances poor? I answer, no. No man is poor who owns 20 or 30 acres of land within a day's journey of a good market, and who has a cash capital of \$1000; but a man may be poor, very poor indeed, to all intents and purposes, who owns 100 acres of land in such a situation, without a dollar of cash capital to improve it with. This then is equivalent to saying that I consider the passion for owning a great number of acres, one of the greatest misfortunes to our working farmers. How common is it, to hear a man who owns 30 or 40 acres of land, spoken of as one who has only a *potato patch*, and yet perhaps this very man on his potato patch, raises more than his neighbor who owns 100 acres. De-

pend upon it, this is all wrong; the best farmer is not the man always who has the most land, but the man who raises the greatest amount from the least number of acres and with the least expenditure. It is far easier and better to get fifty bushels of corn from one acre than two. If I were called upon for advice by some one who owned 50 acres of land, and who was about to buy 20 more, I should certainly say,—rather sell 20 of what you possess, than buy 20, unless your cash capital warrants it. With money in hand, stock can be bought on the most favorable terms, and just at such times as it is wanted. With money in hand, labor can almost always be obtained, just when it is required. With money in hand there is no need of "store bills"—goods can be bought cheaper and better for cash.

But I cannot pursue this matter here: my present purpose is to say something about the improvement of old lands. The subject should be considered under two heads. The improvement of sandy or light soils; and the improvement of clay or heavy soils. I shall take the first for the present article, endeavoring to keep as near as possible to practical experience without favoring one theory or another.

What is the first thing necessary for improving a worn-out sandy soil? I answer, to change its texture, and bring it into, or approaching, that state called loam. How is this to be done? I answer, by a mixture of heavier soils, such as clay, and by the application of barn-yard and other manures, in a proper manner. Any man who has an accessible swamp upon his farm, containing good muck, has the means in his power of enriching his soil. If he has not one of his own, perhaps some neighbor, living at no great distance, may own one; and if it be large, he may have enough for his own use and be induced to sell a certain number of loads yearly for a small compensation. But as it is not always in our power to obtain clay or muck, we must mainly depend upon manures. The *collection, preservation and application* of manure, then, becomes a very important matter to the farmer.

THE COLLECTION OF MANURE.—About this, I believe we are, most of us at least, very far out of the way. There is a waste of manure on most of our

farms every year, so great that could it be presented to our minds in the light it ought, would, I am sure, startle us. Many farmers think they have not time to *make* manure, and yet without manure, they are well aware that they can grow but poor crops. Leaves, weeds before seeding, dirt from road washes, the wood-yard, the fowl-houses, the pig-pens, when properly managed, supply a vast amount of valuable manure. The first four named, should be incorporated with the droppings and litter of the barn-yard and stables; the fifth should be mixed with plaster and ashes, according to the receipt in the May number of the Cultivator for 1850, page 181, and which I think is certainly one of the finest composts I ever used. The pig-pens should be kept well littered with straw, leaves, weeds, &c., and the farmer will be amply repaid for the trouble it will cost him.

Straw is so valuable for converting into manure, and contains comparatively speaking, so little actual nutriment as food for stock, that I think it ought seldom to be used for the latter purpose. Some excellent remarks upon this subject, from the pen of Mr. JOHN JOHNSTON, of Geneva, will be found in last September's Cultivator. I feel sure that they will accord with the experience of all those who have tested the matter thoroughly. The bare droppings from stock, make comparatively but a very small quantity of manure. It may be said that although small in quantity, it is more highly concentrated, and will go further. To a certain extent, this may be true; but it is a well-known fact, that the whole mass of straw, leaves, &c. &c., when incorporated with the droppings and saturated with the liquid from the stock, becomes almost as valuable as the clear droppings, and may be made to exceed it many times in bulk. It is therefore better economy to pass the straw through the yard in order to get a greater amount of manure to apply to the growth of valuable crops. Those farmers living near villages or cities, have opportunities for obtaining manure which are out of the power of those farther off, unless the means of transportation are easy. We presume no good farmer will neglect any opportunity afforded him to obtain a supply of manure at rates that will repay him.

THE PRESEVATION OF MANURE.—I am fully of the opinion that manure ought to be well rotted, to be applied to the greatest advantage on sandy soils. For that purpose, therefore, the manure of the farm should be secured, either under sheds for the purpose, or in yards so planned as to prevent loss by drenching rains, or leaching off, and made one year to be applied the next. The heaps should be covered with dirt or plaster of Paris, in order to prevent the escape of ammonia.

THE APPLICATION OF MANURE.—I have found by repeated trials, that about two to three inches is the best depth to cover manure when applied to sandy

land. I should always prefer plowing the ground first, when practicable; spread the manure broadcast, evenly over the surface, after which, harrow in well with an iron tooth harrow. If manure is used, which is not rotted, it should be put on before plowing, and the ground well harrowed afterwards. I have obtained great benefit from top-dressing grass lands early in the spring, with well rotted manure. There is a custom prevailing in some places, which I think cannot be approved of by the best farmers—namely, manuring the corn crop in the hill, with barn-yard manure. In behalf of the custom it is urged that a greater quantity of corn to the acre can be raised in this way, and that the manure can be made to cover a greater space. The fact is, it is a forcing system; the idea is the making a good crop, not the general improvement of the land. If the season prove moist, a good crop may doubtless be raised in the way named; but should the season prove dry, the manure in the hill would damage more than benefit the crop. The only advantage gained, is in giving the corn a start. As to covering over a greater space of ground, I can only say that I think an even culture the greatest beauty of farming, and my dislike to the system in question is, that it militates against this. Corn is a crop, the roots of which run out every where in search of food; if manure is spread evenly over the surface, as soon as the roots of the corn begin to extend themselves, they will be sure to find it, and at a time, and in such quantity, as is best suited to the growth and development of the plant—and the ensuing season our eyes will not rest upon an uneven field of oats; here a tall cluster of spires, and there an army of dwarfs. I have stood some distance off, and looked over a field treated in this way, and could count where every hill of corn had been the season before. Such a system of husbandry is not calculated to improve our worn-out land. We want an even culture, calculated to benefit the whole, not a part of the land. Broadcast applications of manure, evenly spread over the surface, are always the best.

PLOWING SANDY SOILS.—So far as my experience goes, I have found six inches the best depth to plow sandy soils and loams. I am aware it is very fashionable to say "plow deep," and I think this is said too much, without any discrimination. In clay soils, there is little fear of going too deep, but there seems to me no reason in plowing a soil to a great depth, that is already too porous. Even sandy loams are not benefitted by too deep plowing, and as to subsoiling any light soil, except, perhaps, for the purpose of raising root crops, I think it ruinous.

FENCING.—The first object of attention in regard to fencing, should be to get line fences in good order. "Good fences make good neighbors," is an old and true adage. The lines should be evenly divided, and memorandums to that effect should be exchanged

between the parties. The kind of fences will necessarily depend much upon the location occupied; in some places timber is abundant, and stone scarce; in others the reverse of this occurs.

In all places where stone fences can be made, they are greatly to be preferred; they are stronger, more durable, and less expensive. I have often been surprised, in going through different sections of the country, to see a field covered with loose stones, surrounded with a poor-looking, old rail fence. The owner had perhaps plowed it for years in that condition, and the idea never seems to have entered his mind, that the stones could be converted into a fine fence, bettering the condition of his farm, and giving it a thrifty appearance.

I have said that stone fences are less expensive than other kinds; as an idea to the contrary seems prevalent, some explanation may be necessary. Let us make a calculation as to the relative cost of stone and wood fences. I mean, of course, where stone is abundant. Worm fences are probably the cheapest kind of wood fences.

1 panel, of 12 feet, will cost as follows:

7 rails at 6d each,.....	\$0 42
2 stakes, 3d, each,	06
Labor putting up,.....	02
Total,.....	\$0 50

This estimate, in the section of country where I reside, would be considered low. Now, I have had good single walls built, three feet bottom, (singled up to a foot across the top,) and four feet high, (such walls will stand better than double ones, unless sunk below the frost, and made very large,) for from 50c. to 63c. a rod, including every expense, board of men, teams, &c. Such a fence, then, costs not as much as worm fence, and is far stronger and more durable. A fence of this description will resist cattle and horses that would vault over, or tear down, a seven railed worm, or five railed post and rail fence.

The expense attending fencing a farm is always great, but there is no outlay that pays better than a judicious system of fencing. Where stone or timber is plenty, fields can scarcely be made too small. I should be glad if the tillable land of my farm was fenced in acre lots. It is, perhaps, to the system of fencing in small lots, more than anything else, that farmers living in mountainous lands, are enabled to live and do so well as they do. In order to get rid of the stone on their land, they are necessarily compelled to fence in small lots. This gives them an opportunity to shift their cattle often from field to field, thereby obtaining for them fresh pasture almost daily. I recently heard of a man who grass-fatted twenty head of cattle on twenty acres of land. This seems at first view, almost incredible, but a glance at his plan will show that it is not impossible. He fenced his fields into acre lots: when the grass was well grown, he turned his twenty head into one

field. This they eat off pretty clean, and manured pretty well in a day—he then, next day, turned into the next field, and so on till the whole were used. By this time the first field had had twenty days rest, and was covered again with an abundant herbage. The same system was pursued throughout the season. Now, had these twenty head of cattle been turned into a twenty acre field, it would not have been long before they would have had it gnawed down to the earth, and so far from fattening, they would, in all probability, have had hard work to find a living on it. If any one should think it an objection to fencing in small lots, that it takes up too much of the land, I think upon trial, that the advantages accruing therefrom, will be found so great as to amply compensate for the loss of land.*

In many parts of the country, it seems to me that there is no system of fencing at all—at least I should judge so from the perfect want of plan and order with which fields are enclosed. We have seen them of so many different shapes, sizes and figures, that it would require a pretty good geometrician to tell what they were. I know that plain farmers cannot always have everything according to the rule and plummet, but I think some improvement might be made in this department of farming, which would be of great advantage to the farmer, as well as contributing to beautify the general face of the country. Upon many farms where I have been, in this and other sections of country, I have found a great source of inconvenience arising from the want of lanes. I have known farmers to drive cattle nearly half a mile to get to some particular field, which could have been reached in 200 yards, had a proper lane been made where it ought to have been. In many instances, the use of whole fields are lost for a season, from the want of lanes. An impression seems to exist, that they take up land. If farms are properly laid out, lanes, which will make themselves easy of access all over, will take up but little room, and it will not be lost, for they always afford a great abundance of good pasture.

GENERAL IMPROVEMENT OF THE FARM.—There is no quicker way within my knowledge to improve a sandy soil, and no one calling for less outlay, than

* We are unable to agree with our esteemed correspondent on this point. We think the division of land into small lots, is liable to objections that are by no means balanced by the advantages. It creates a great expense in the erection and support of fences, occasions the loss of land, and increases the expense of cultivating crops. In the case of stone walls, they necessarily cover several feet in width, and besides the ground they actually cover, there is always a strip on each side which cannot be plowed, and whenever the field is in tillage, the use of this strip is lost. If land is divided into "acre lots," the number of turnings in plowing and other work, is much increased, and in consequence of the time thus lost, much less work is done in a day. As to the advantage of shifting stock in the way proposed, there are different opinions. Some who have tried both small and large divisions, for pasturage, have given the preference to the latter. To fatten an animal on an acre of grass, is doing well, but not better than is frequently done in the best grazing districts, without resorting to such small divisions as our friend recommends. *Eds.*

the following: Fence off a number of fields in one, two, or three acre lots, according to the size of the farm; get one or two of them seeded well with common clover. Begin with the first lot; turn in as many hogs as it will keep well during the season; a little corn in the fall will make them fit for market. Next season do the same; the third season the land will be rich, and can be plowed for corn, or any crop you please. Go on to the next field with your hogs, and so on till the whole is exhausted. This plan is well adapted to fields situated on steep side-hills, which are difficult of access, and to which, in consequence, manure cannot easily be carted. It is said hogs will do well on clover without water, but I think they will do better with it, and should there be no water in some of the fields, it can be supplied from other fields. A half hogshead, filled once a week, and left where it could be supplied to them from large troughs, would answer a good purpose in lieu of anything better. Great care must be taken to keep the hogs well rung and the fences must be looked to often, as hogs are sometimes unruly, although, as a general thing, I think that when animals are well fed and taken care of, they are not apt to be a trouble to either owners or neighbors.

IRRIGATION.—No good farmer who has it in his power to irrigate a portion of his farm, from brooks or streams running through it, will, I am sure, neglect so important a means of enriching it. A neighbor of mine, a year or two ago, found that he could obtain a supply of water from a mill pond, some distance off, by which he could irrigate some 40 acres of his land. He bought the right to do so, and the right of way across the property belonging to the miller. I think he paid \$400 in cash for it, and is to pay \$25 a year besides, as long as he chooses to let the water run on his meadows. Some of his neighbors thought him crazy, but he has already received benefit enough from it, to show that he was warranted in paying the price he did. The difference between the grass he cut before the water was put on, and what he cuts now, is truly astonishing. I have myself, this fall, succeeded in carrying a stream of water from a brook running through a part of my farm, to a meadow some 300 yards distant, containing about three acres, and look confidently for the increase in my next years' crop of grass to pay all the expense of doing it, which was about \$18. I have some streams from the hill-sides, during the spring and part of the summer, which do good work on my pastures and meadows in their vicinity.

But the length of my communication warns me that it is time to stop. One word to my friends of the plow. The new year is come upon us; let us resolve with it to begin a better and more thorough system of improvement upon our old soil; let us perfect old systems, if they are good, and plan out new ones. Read and improve ourselves. If you happen to belong to that class who already know enough

and have nothing to learn, pray write and disseminate your knowledge, that we who would gladly learn all we can, may benefit by it. H. C. W. *Putnam Valley, N. Y., Nov. 28, 1850.*

Manures.—Top-Dressing.

WE are indebted to Hon. JOHN W. PROCTOR, of Danvers, Mass., for a copy of an essay on Top-dressing Grass-Lands, written by Mr. CHARLES L. FLINT for the Transactions of the Essex County Ag. Society. The length of the paper precludes the possibility of our publishing it entire, and we therefore give the following extract, which contains many useful suggestions:

It is a very common practice to suffer the manure from the barn to lie exposed for months to the winds and rains of summer and winter. Many farmers have no arrangement by which the liquid and most valuable part of stable manure, is saved, and yet, under all these disadvantages, they are too apt to congratulate themselves on having so many loads of manure. They do not consider that it is the quality, and not the quantity, which adds richness to the soil. The practice of digging a cellar under the barn, is becoming more common among enterprising farmers, and it may be said that the increased value and quantity of the manure, is enough to pay far more than the interest of the extra expense. Sheltered manure is far more valuable; but in cases where this has not, and cannot well be done, much of the real value may be saved by forming the yard so that nothing may escape. Let peat mud and loam be thrown in to absorb what would otherwise be lost. Plaster, occasionally thrown into the yard, is like money—I will not say in the savings bank, but rather put to compound interest.

In Flanders, where the greatest economy is practiced, the liquid of a single animal is estimated at from ten to fifteen dollars a year. This, applied as a top-dressing, has a surprising effect. No one should neglect to form a compost heap; it may be so made as to form an extremely valuable article for top-dressing. A quantity of meadow mud, should be dug out in the autumn, for this especial purpose. That this is indispensable, will be seen from the fact that two cords of peat mud, added to one cord of good stable manure, will make a compound of three cords as valuable as clear barn manure.* This has been tried repeatedly, and is constantly done by those who are ambitious to excel in farming. To this compost should be added, from time to time, all the animal and vegetable matter adapted to enrich the soil; woolen rags, the remains of fish, the blood and flesh of animals, the hair of animals,—all these make an exceedingly rich manure. A most intelligent gentleman, connected with a wool factory, informs us that

* Peat varies much in its value as a manure. Some may be worth what it is here estimated at; but we think it put too high to be received as a general rule. Eds.

a cord of matter collected at the establishment, is worth at least five or six cords of the best stable manure for a top-dressing. This we cannot doubt, for here are the blood, the wool, pieces of the skin of the animal, and many other substances, all collected together. A fermentation takes place by which the richest gases are formed. Such a compost heap, with an addition of loam and mud, would be invaluable for a top-dressing. But though, in most cases, all these substances cannot be procured, many of them can and should be saved by every one who is desirous of improving his lands. Those who are near the sea, or near the market, can procure an abundance of fish to add to the compost. Nothing is better for soils than this. Ashes should also be added, and when additions of manure are made, they should be covered with mud or loam to prevent waste.

We need not enter more minutely into the details of forming the compost heap; it is sufficient to say, in a word, that everything capable of fermentation may be added to it. The lower layer should be of loam or mud. Nothing is more common among farmers, on the death of a horse, or any other animal, than to throw the body away. It is estimated by some, that the body of a single horse, when divided and mixed with peat, mud and loam, will make a compost worth fifteen or twenty cords of the best and richest manure. This is perhaps too high an estimate, but animal substances ferment rapidly, or rather they may be said to putrify without fermenting, so quick is their decomposition. Leaves, grasses, moss, straw, and other substances of like nature may be used, and when they are well fermented, the heap should be thrown over; and if it is made long and narrow, so as to expose the greater surface to the air, it will be better. Whenever such a compost has been used as a top-dressing, it has produced the most astonishing effects. Many experiments have shown that this is the best way of using such a compost. In the fertile county of Hertford, in England, it is seldom used in any other way. It cannot be too highly recommended.

Animals fed on rich food make the most valuable manure. This will serve to show why the manure from the pig-sty is so fertilizing. Swine are fed on a great variety of rich food. The actual profit of raising them in some places, arises mainly from the amount of substances they will mix together and make into good manure. Let the sty be supplied at intervals with mud, loam, and other vegetable matter, and farmers will not complain of the cost of these animals.

Liquid manures are highly useful to grasses. Care should be taken to apply them, also, to the compost heap. The richness of manure from the sty, is owing mostly to the great quantity of liquid matter; hence the importance of adding a great variety of vegetable substances, loam, and mud. In a word it

may be said that all liquid manures contain a large amount of nitrogen, which is an important ingredient of ammonia. The importance of saving the liquid of stables, either with the compost, or to be applied by itself, may be seen, also, in the fact that the exceeding richness of guano and the ordure of all fowls and birds, is due to the union of liquids and solids. Spent ley from the soap boiler, is also a powerful liquid application. It shows its good effects for years, when properly applied.

After fermentation has taken place in animal manures, in the compost heap or elsewhere, they may be spread without much loss by evaporation; and hence it matters not whether the top-dressing is applied in the autumn or in the spring. Plaster is better spread in the spring, when the moisture of the earth makes it immediately available. Not so with other manures. Some prefer the autumn for spreading these, while others prefer the spring, just before the thick grass surrounds and protects them from the sun and wind. The soil in autumn is not injured by the loaded cart, as it is apt to be in spring. Others still apply them after the first mowing, and before the summer rains. The new crop preserves the manures from drying up and wasting. This, however, is ordinarily too busy a season to attend to it with convenience.

Natural Application of Chemistry to Agriculture.

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The advantages to be derived from knowing the composition of rocks.—Soils are rocks broken and worn more or less fine. If a portion of any soil be taken and examined carefully, a greater or less number of small fragments of rock can be easily discovered with the naked eye. To separate these, place the soil in a small dish, and throw on a small quantity of water; agitate, and then decant or pour off the riley or turbid liquid, which holds in suspension the finer particles of the soil. Repeat this a second, third and fourth time, or till the water which is poured on the soil after agitation, appears clear, or free from any fine particles of soil.

Let the washings stand and settle. While this is going on, examine the materials in the dish which are too coarse to be suspended by the water.

These will be found to be fragments of rocks. In some soils, nearly or quite the whole of them will consist of one kind of rock; in others many kinds mingled together.

After the finer particles in the washings have subsided, pour off the clear liquid, and dry the fine soil which has settled. On examining this with a small magnifying glass, the whole of it, except a small quantity of organic matter, will be found to be composed of fragments of rocks, and simple minerals, in all respects similar to the larger fragments previously examined, but many of them very minute.

How came the rocks in this form? The rocks came in this form mainly through the influence of air, frost, water and acids. We, by a little observation, can see and understand how powerful an agent water is in breaking down rocks and depositing them in the form of soil. We need but visit any of the thousand little streams that come babbling from the hills, through as many rocky ravines. By tracing any one of the busy rivulets to its source, and noting all of the materials over which it flows, and gathering a specimen of each, then descending to the plains, where it more leisurely glides, where the materials which it has gathered in its course among the hills are deposited—at first the more coarse, then the more fine—we shall find that the samples gathered correspond in almost every respect, except in that of fineness, with those which have been brought down from the highlands by the stream, and left on the plain in the form of soil.

This is what we observe on a small scale. The larger streams, as well as the smaller, are engaged in the same work of wearing down in one place and depositing in another. Water, holding in solution acids,—as carbonic, sulphuric and nitric,—exercise an action in decomposing the rocks with which they come in contact; but this action is chemical, not mechanical, and very limited too, when compared with that of the busy rivulet, the ever plodding river, the surf-beating lake, or the storm-driven ocean. Frost and atmospheric changes, also, exercise a powerful influence. It is through the action of these agents, that the soils are formed, fitted and sustained, so as to support vegetation in such abundance and luxury.

Some soils are made up almost entirely of one kind of rock. When this is the case, it is evidence that the soil has not been transported from any other place, but that it has been formed mainly by the decomposition of the rock on which it rests. This occurs in many places where there is no drift or transported materials, and the same rock extends over a considerable range of country.

The advantage of knowing the composition of the rock on which such a soil rests, is, that by knowing it, we know the general composition of the soil. Soils are often made up of the worn down fragments of a number, and sometimes of a great variety of rocks and simple minerals mixed together. A soil of this description is generally drift, i. e., has been transported from a distance, unless it occurs where a number of rocks crop out in the same vicinity.

By knowing the composition of the various rocks which compose this soil, the composition of the soil can be approximately determined or arrived at; in other words, we have a general idea of its constituents.

This knowledge could be very advantageously used in the purchase of lands, in selecting grain farms, grazing farms, or in deciding in a general way, upon the kind of crop or crops best suited to a soil, and

what it would probably be necessary to add in order to fit it for any particular grain, root, fruit, &c.

Other things being equal, the more completely the fragments of rock are broken down or divided, the more productive the soil which is formed. The reason of this is, the finer the particles, the more readily are they dissolved or separated into their proximate inorganic constituents. They must be dissolved before they can enter the plant as food.

The advantages to be derived from knowing the precise composition of soils.—The knowledge which we derive from studying or knowing the composition of rocks, although very useful and important, is so, for the most part, only in a general way. It gives us a kind of information which we could gain by no other means, and may be considered as a stepping-stone to a series of inquiries or investigations, more special and minute, to wit: the study of the composition of soils.

One great aim of the agriculturist, should be to know the precise composition of the soil he cultivates. If he knows this, he is able to calculate the actual and the percentage amounts of the several inorganic bodies and organic matter, which enter into the composition of an acre or any given area of his land, at the depth of six, ten or twelve inches. This gives him the quantity of each ingredient of his soil which lies within reach of the plants he grows. The practical utility of this knowledge, will be more plainly set forth when we come to speak of the advantages to be derived from knowing the composition of cultivated plants, and that of the substances used for manures.

The practical utility of knowing the composition of cultivated plants.—It is not enough for him who tills the ground to know the constituents of his soils, and that of the rocks on which his soils rest. Every one who follows the pursuit of agriculture, who attempts to avail himself of the advantages which practical chemistry affords, finds that after he has obtained an analysis of his soil, and that of the rocks on which it rests, that although this information is of great practical use, yet there is still a something wanting in order to regulate and adjust the compass which is to guide him understandingly and safely on. He says to himself, "I understand what the ingredients are which compose my soil, but I do not know what my crops remove from it, as I am ignorant of the substances which compose them. If I did know what ingredients entered into the composition of my several crops, and the percentage quantity of each ingredient, then I could calculate nearly the exact amount of each that is taken away from my ground, and could adopt measures to return them as fast as removed."

The advantages to be derived from knowing the composition of manures.—Suppose, now, that he knows the composition of his soil, rocks and the plants he cultivates; he still feels that there is yet

a link wanting in order to complete the chain. Says he, "I know now the quantity of each inorganic ingredient that is removed yearly from my soil. It will not pay me to go to a commercial establishment and purchase these substances. My crops, if I do this, will hardly pay me for the food they eat. I must take some other course. Here are a variety of substances called manures. If I learn the composition of these, I shall then know whether they contain all the bodies which are removed by my crops. If they do, then I can add such of them as will yield to my soil the ingredients which are removed. This is admitting that my soil is fitted to produce in the best manner any crop which I wish to grow on it when I begin. But suppose my soil is poor, or does not contain all the ingredients in a sufficient quantity to be productive. My first step is to find out its precise composition. After I have determined the percentage amount of each ingredient which it contains, I then know what bodies to add, and in what quantity to fit it to grow any crop I wish it to produce.

"I now understand the mechanical condition of my soil, the ingredients which compose it, the ingredients which enter into my crops, and the ingredients which make up my manures. If the mechanical state of my soil is such as to make it too wet, too cold, too adhesive, too loose, too fine or too coarse, I have only to drain it, or to add such materials as will make it less adhesive, or more adhesive, less fine or less coarse, as the case may be, to fit it, so far as the mechanical part goes, to grow any plant adapted to the climate in which it lies.

"If now, my soil is in a proper state, mechanically, and does not contain all the ingredients which I know exist in the plants which I wish to grow on it, all I have to do, is to add such manures as will yield to it the bodies in the proper proportion, which my plants require to feed upon. This is necessary, because my plants cannot travel about and collect their food like animals, but are stationary, and must have everything which goes to nourish them, or to build up and support their several tissues, placed within the reach of their arms or roots.

"I now begin to see my way clear. I feel that this knowledge has entirely changed my mode of farming. You will observe that I do not believe as I once did, and do not transact my business as I used to do. I do not, now, think it advisable, when dealing with my soil, to claim the best end of the bargain—to pilfer, cheat, or rob it of a little, every year, because I have learned that such a course is not for my interest. Although it might at first, perhaps, give me a few extra coppers to jingle at my leisure; yet eventually it would prove a permanent injury, for by it I lose both my reputation and my soil. I find it much better for me to deal honorably and honestly,—to return to my soil an equivalent for

whatever I take away. I then feel myself an honest man. My soil admits my honesty, and is ever ready to serve me with the bounty I ask."

The practical use of knowing the composition of the several parts of the animal body.—Our thinking friend now understands clearly that part of his occupation which pertains to the best mode of cultivating plants. But there is another branch intimately, and we might almost say inseparably connected with agriculture; and that is the rearing and fattening of animals. Says our thinking friend as he reasons, my animals subsist upon the plants which I grow upon my soil. They must, then, contain the ingredients which are found in the plants on which they feed. I may hence infer that if I would rear and fatten them in the best and most economical way, I must advance one step further, and study the composition of the several parts of the animal body, and understand the functions or office or duties of the several organs which compose it. I must not only know the composition of bone, the composition of muscle, nerve, fat, membrane, cartilage, hair, &c., with the general percentage of each of these in the healthy animal; but I must also understand what matters pass off through the various organs of secretion, as the liver, kidneys, &c., together with those which go off through the lungs in respiration or breathing, those which are carried off through the skin in perspiration or sweating, and those voided as manures. I must, also, know how the secretions and excrements vary in the same animal when fed, at different times, upon different kinds of food. I shall then understand what part of any given kind of food eaten, goes to feed the bones, what part to feed the muscles, nerves, membranes, &c., what deposited is in the form of fat, and what is rejected and cast off in the form of excrements. This knowledge I know, says our friend, is of great practical use. For instance if I wish an animal to fatten in the least possible time, with the least possible waste of material, it enables me to feed him on such materials as will bring about this end. If I desire an ox or a horse to endure great muscular fatigue, I am enabled to keep him on such food as will best strengthen and support the muscular system.

The proximate compounds for the most part, which we find in animals, we find also in plants. These compounds are made up entirely of ultimate or simple elements. All of the ultimate elements, so far as known, which exist in animals, exist in plants. All of those found in plants exist in the soil and air. These ultimate elements, it is supposed, enter plants nearly, if not entirely, in their simple state. It is the office of the plant to organise or group together these simple bodies into compounds, which take the name of proximate bodies or compounds; which means that they are made up of two or more simple or ultimate ingredients—as carbon, hydrogen, oxygen, &c.

Starch, dextrine, sugar, gum and fibre, are each proximate organic bodies, and are severally composed of the ultimate elements carbon, hydrogen and oxygen, united in each case in nearly the same proportion. It is the office of the animal either to transfer the proximate bodies of plants to its own tissues, without materially altering them chemically, or to change them into others more simple, or into such, the ultimate elements of which have a less affinity for each other, than in the original compounds; or to decompose them entirely into their simple elements.

The animal body seems to possess no power like the plant, by means of which it is able to organise or group together simple bodies into what are called proximate organic compounds. The final tendency of the animal, seems to be to disorganise or decompose organised matter which the plant has formed; the office of the plant to organise inorganic matter, or to group together the simple elements of the soil and air into proximate organic bodies. These proximate bodies, animals decompose and return to the soil, for the plant again to organise—to be in turn disorganised again by the animal. Thus, we see that the soil, the plant and the animal, are merely transforming agents for a portion of matter in its continual round of travel. For this reason we know why it is so useful for the agriculturist to clearly understand them. This will be more fully illustrated when we come to give the composition of rocks, soils, plants, substances used for manures, and the constituents of the several parts of the animal body.

Progress of Agriculture.

Improvement in Agricultural Implements, No. 2.

In our last, we noticed the improvements which have been made in several implements of agriculture, and now continue our observations by referring to other improvements in the same department.

THE CULTIVATOR OR HORSE-HOE, was introduced into England by JETHRO TULL, more than a century ago. It has been of considerable importance in lessening the expense of cultivating many crops, as well as increasing the yield. By using this implement instead of the plow in the cultivation of Indian corn, potatoes, turneps, and other root crops, much less labor is required with the hand-hoe; and the cultivator has, in fact, taken the place of the plow to a great extent. Besides the saving of labor in cultivation, which this change has effected, an advantage is derived, on the drier class of soils, from the better situation in which they are left by the cultivator—it leaves the surface comparatively level and less exposed to be dried by the sun and air than when thrown into ridges by the plow.

The cultivator has been greatly improved in its construction within a few years. Steel has been substituted for cast-iron for the teeth or feet, which, for

stiff soil, is of much advantage—cast-iron teeth being only fitted to work in soils of the loosest description. The increased length of the teeth, which some manufacturers have added, is of importance in enabling the implement to do thorough work among weeds and grass without clogging.

A form of this implement called the “field cultivator,” has been adapted to working fallows and preparing ground for the reception of seed. It is very useful for this purpose, executing the work with despatch, and leaving the soil loose and friable. A man and a pair of horses with one of these field cultivators can thoroughly work over four times as much ground in a day as could be plowed with the same team, destroying the weeds, (unless they are very large) quite as effectually as would be done by any implement.

THE DRILL-MACHINE.—It cannot be claimed that this is a modern invention, as a rude article for depositing seeds is known to have been used by the ancient Egyptians. A general use of the drill, however, has not prevailed in Europe or America till a late day. The credit of its introduction into England belongs to TULL, who regarded it rather as an auxiliary to the system of “Horse-hoeing Husbandry,” of which he was the originator. His first drill was constructed in 1701; but this appears to have been only designed for clover and lucerne, and it was not till thirty years afterwards that he obtained a patent for a machine for sowing wheat, turneps, &c. Little progress appears to have been made in the use of the drill till 1782, when by the exertions of the Bath and West of England Society, attention was generally called to the importance of drill-husbandry, and various improvements were made in the implement. Its advantages have since been considered of such great importance, that it has been pronounced the “sheet-anchor” of English wheat-husbandry. In reference to the benefits which were attributable to TULL on account of the introduction of these implements, it has been remarked:—

“His drill and his horse-hoe, have saved his country in seed alone, the food of millions; and when used as a distributor of manure it has done, and it will hereafter accomplish, still greater things. It has brought into cultivation thousands of acres of barren craig, the wolds of Lincolnshire, of the deep sands of Norfolk; and its powers are not yet nearly exhausted, for as fresh fertilizers are discovered, the drill evenly and economically distributes them, and as improvements in its construction are continually taking place, there is evidently much yet to be achieved by its use.”*

The hand-drill has been used in this country for several years, but its use has been confined mostly to garden cultivation and root crops. The introduction of the field-drill in American husbandry is quite recent, it having been scarcely known ten years ago. Its advantages here appear to be fully equal to those which have been realised in Europe; they may be summed up as follows:—

* Scottish Quarterly Journal of Agriculture.

1. It saves seed; 2. It distributes the seeds with greater regularity than it can be done by hand; 3. It deposits the seed at any desired depth, and insures speedy germination; 4. It affords an opportunity to destroy weeds which infest the crop; 5. The crop receives the undivided benefit of the soil; 6. By the admission of air between the rows, a stronger plant is produced and a heavier crop is obtained; 7. In reference to wheat and other grain, the crop is less liable to blight or mildew; 8. Fertilizing substances may be deposited with the seed, by which the crop is more largely benefitted than it can be by any other mode of using manures; 9. It protects grain against winter-killing.

The drill has been greatly simplified in its construction, and cheapened in price, by our mechanics. With a good machine, a man and a horse will sow eight to ten acres of wheat in a day.

THE REAPING-MACHINE.—This machine is becoming of immense importance, especially in securing the grain crops of the west, where from the great extent of cultivation, and the comparative scarcity of labor, it would be impossible, without it, to gather the harvest. The particular advantages of the different kinds of reapers, were so well set forth in the last number of our journal, that any further observations on the subject, are unnecessary here.

THE HORSE-RAKE.—This is comparatively a new implement, it having been invented but about forty years ago. It has, however, been greatly improved from its first form, and is now much more perfect in its operation, and is worked with much more convenience and less labor than formerly. It saves nearly one half the expense of gathering hay. The implement is made in various ways, though the principal difference is in the material used—the teeth of some being of wood and others of iron or steel wire. The latter kind, if wire of sufficient size and strength is used, answer an admirable purpose in cleaning fallows—drawing out and gathering the roots of couch grass ("quack") and other pernicious plants.

THE STRAW-CUTTER, though not a new implement, has not been brought into general use till within the last twenty-five years. It makes in many cases a very important saving in the expense of feeding horses and cattle. The construction of the article has been greatly improved in respect to its simplicity, and the efficiency of its operation, and the amount of work that can be done in proportion to the power required.

These are some of the improvements which have been made in agricultural implements—to specify all, would require more space than is consistent with our present object. It is evident to those who have had the opportunity of only thirty years' observation, that the scythe, the grain-cradle, the hand-hoe, the vehicles used by the farmer, and nearly all

articles, in fact, which he has occasion to use either in the field or the garden, have undergone changes by which they are much better adapted to their respective purposes.

Animal Heat.

The necessity of a certain degree of heat in animals, in order that life may be supported, is well known; but the process by which this heat is produced, and the importance of supplying the materials for its production, is not sufficiently known and regarded. The cause of animal heat may be said to be the same as that which is called into play in ordinary combustion—that is a union of carbon and oxygen. All animal food must contain carbon, and after the food has undergone a proper change by the action of the digestive organs, the carbon is carried by the blood to the lungs, where, by the process of respiration, it is united with oxygen, and produces heat. We give herewith some remarks from a correspondent of the English *Ag. Gazette*, which illustrate this subject in a very interesting manner. It will be seen that he notices the fact that animals in which respiration is rapid, require food more frequently than those in which respiration is slow; and in this connexion it is mentioned that serpents, whose breathing is very sluggish, will live three months or more without food. In proof of the correctness of this remark, we may state, that in the month of August last, five large rattle snakes were placed in the charge of Mr. GEBHARD, the curator of the New-York Geological and Zoological collections in this city. Excepting one, which died in December, they have been confined in a box from that time to the present, and have eaten no food whatever during this period. Two of them have brought fourth young, since they have been in the box; one producing fifteen and the other five. The latter were either dead at birth, or died soon afterwards—as they were all dead when discovered; but of the former, twelve are still living, and like the old ones, have been kept entirely without food. It was one of those which produced young, that died. It is, however, in reference to the higher orders of animals that the following observations are chiefly valuable.

All kinds of food consumed by animals must contain carbon in proportion to the temperature of the climate in which they live, and their appetites will direct them to select the food necessary for their sustenance. At each inspiration, an animal imbibes a certain quantity of oxygen from the atmosphere, (which is composed of 79 parts of nitrogen, and 21 of oxygen,) and it must meet with a proportionate quantity of carbon to sustain life. Animal and vegetable food contain carbon in different proportions; that of fat, bacon or pork, as much as 80 per cent; this may be easily imagined, when we consider that candles are made from fat. After lighting the wick, the atmosphere supplies it with oxygen, and in uniting with each other, they produce light and heat. If the extinguisher be placed over it the light goes out, for nothing can burn without oxygen, and most animals kept ten minutes without air, will die.

The quantity of oxygen that is breathed, regulates the appetites which are brought to supply the system with carbon, sufficient to keep the blood always at the same temperature; for from the authority of the best authors, and the practice of many scientific men, the heat of the blood of a man in Lapland is 98°, the same as at Calcutta, or any other place on the globe. In England, the appetite is greater in winter than in summer, for one-eighth more oxygen is imbibed in the former than in the

latter season; for the same air that fills a bladder of 80 cubic inches in winter, will fill one of 100 cubic inches in summer—the heat expands it. In summer we breathe less oxygen than in winter, for the warmer the season, the thinner the atmosphere, and the organs of digestion are in a great measure regulated by the season and climate. In this we see a wise provision, the blood of animals being always at the same degree of heat. A man traveling towards the Equator cannot inhale so much oxygen, consequently he loses his appetite, and does not keep up so great a fire within him; on the other hand, a man moving towards the North Pole will become voracious, as the condensed atmosphere will require so large a quantity of carbon to maintain the standard degree of heat. Persons living in the East Indies, or any other hot climate, exist upon fruits, or food containing not more than 12 per cent of carbon; those living in the Arctic regions, will eat at one meal five pounds of blubber or fat meat, and drink train oil or brandy in proportion. Under the Equator animals will eat less, and bear hunger for a long time, but in a cold climate, hunger will soon cause death. According to Liebig, an adult, in taking moderate exercise, consumes in one day 13.9-10 oz. of carbon, and the conversion of this into carbonic acid, will require 37 oz. of oxygen, and that animals differ in the temperature of the blood in proportion to the respiration and size of their bodies; for instance, the heat of a child is 102°, and an adult 98°; in birds it is 104 to 105, and in animals from 98° to 100°. From this it appears that a child, whose respiration is quicker than in a man, requires food more frequently; a bird deprived of its food will sometimes die on the third day, and a serpent, being sluggish in its breathing, will live three months and more without food. Fishes are warmer than the element in which they live, but although they are generally under water, they are not without air; the finny tribes are provided with a bladder containing air, and according to the expansion of the vessel that contains it, they rise to the surface or sink to the bottom.

The pulse and breathing of animals may be compared to the weight and pendulum of a clock, for one regulates the other. Great exertion will cause quick breathing and palpitation of the heart, and it may be imagined that it may raise the temperature of the blood; but such is not the case, for science and observation will show that animals are protected against excessive heat. In a steam engine, its speed or power is regulated by its furnaces, and as the water becomes rarified, the strokes of the piston become more frequent; but when it arrives at a certain power, the pressure from within opens the safety-valve and liberates the extra quantity of steam. In animals, a quick pulse and quick breathing, may produce more heat, but to keep the circulation always at the same temperature, their skins are provided with pores, which open like safety-valves, to let off the heat by means of perspiration.

It is here necessary to observe that some animals never sweat, but when running, the tongue is protruded, and perspiration is secreted from that member, and the mucous membrane of the mouth. It has been supposed that in racers, hunters, &c., the decrease of fat is attributable to perspiration; but it appears to be from another cause. The quick breathing of a galloping horse may have the same effect upon his fat as the blacksmith's bellows have upon the coal; the coal, (which is carbon,) by receiving a strong current of air from the bellows, is soon reduced to cinders, and the fat (which is also carbon,) is reduced by the oxygen which is breathed. Carbon, hydrogen, nitrogen, oxygen, and sulphur, are the ingredients of fibrine, gluten, and casein, which constitute blood, and being conveyed by the arteries to every part of the body, and having deposited the fibrine, which is the chief ingredient in muscle, and its carbon, which is the chief ingredient in fat, it is returned by the veins and undergoes another chemical change.

Fat animals can live longer without food than those in low condition; a fat pig was once overwhelmed in a slip of earth and lived 160 days without food, and was found to have lost 100 lbs. in a month. In an animal kept without food, the oxygen will apply to the fat for carbon to keep up the heat of the body; after that it

will go to the muscles, and leave them soft and weak; lastly it will attack the brain, causing delirium and death. The appetites of animals may be increased by a bracing air and exercise; but the quieter they are kept, the faster they will fatten, provided the sheds, houses, or boxes, are kept at a moderate temperature. Nature has provided the brute creation with clothing sufficient to support life in the climate for which they were ordained; but to prepare cattle for the butcher, abundance of suitable provender, quietness and warmth, are essentially necessary for so large a formation of fat.

Notes of a Tour in Central New-York.

ANALYTICAL LABORATORY, YALE COLLEGE,
New-Haven, Conn., Jan. 1, 1851.

EDITORS CULTIVATOR—I might write you still several more letters upon topics particularly connected with Seneca county, which was the chief subject of my last, but fear lest I might seem tedious, and also wish to avoid telling what will be better told in Mr. DELAFIELD's forth coming report.

The last county fair at which I was present, was that of Ontario county at Canandaigua; my time then being limited, I only arrived in that place on the evening of the first day, and left on the evening of the second or closing day of the fair. I consequently had little or no opportunity for seeing the face of the county, or of becoming extensively acquainted with its farmers.

This county has a high reputation among its neighbors for the spirit shown in its fairs, and for the scale on which they are got up. It was a subject of regret that I could not see the stock, the show in that department being over previous to my arrival. It was described as uncommonly good. Mr. JOHN GREIG, President of the County Society, has undoubtedly by his countenance and assistance, done much in sustaining and popularizing these exhibitions; though not a practical farmer, he has the sagacity which so many men of large property lack, to perceive how closely the prosperity of any country is connected with the success and the improvement of its systems of agriculture.

The show of fruit and vegetables on the second day, was remarkably fine. The crowd which it attracted, rendered it difficult to enter into any critical examination of the varieties, and I was obliged to content myself with a general survey. There are numerous amateur producers of fine fruit in this vicinity, and the beneficial results of their friendly rivalry were quite apparent.

The fruit business is becoming an interest of much importance in these western sections of the State, and is destined to prove a source of large income to those who engage in it with an appreciation of what is necessary to success. The soil and climate both concur to favor judicious enterprise in this species of cultivation.

Toward the close of the morning, a plowing match came off, and was contested by a rather numerous company. I was present until driven away by the rain, which commenced just before noon, and continued so violently as to interfere seriously with the enjoyments of the day. Some of the work was very inferior, but for the most part it was good, and there were three plowmen who need not fear to compete even in an English plowing match. I have seldom seen furrows cut more straightly, or more evenly. One or two of the best, were Scotch and Irish, who had learned their

trade regularly in the old country. Probably there is no department in our practical agricultural operations, where a greater improvement has been made of late years, than in that which relates to plows and plowing. The construction of the implement, and its proper use, have alike been made special subjects for study and experiment. Plowing matches, in connection with the agricultural fairs, have contributed in a striking manner to this result, and it serves to show how much we may do in other directions, if we will make a corresponding effort.

Notwithstanding a heavy rain, my address was attended by a very crowded audience. The room was densely packed, and quite a number were unable to obtain even standing room within the doors. The subject was, "the necessity of a special education for the farmer," and my observations were received with the same fixed attention, and the same evident interest in the theme, that I had occasion to notice in all this region.

I mention this now, as connected with a few remarks upon the general state of things in these counties, which I design to make in closing this series of letters. With all the home prejudices and all the attachment to New England, of a thorough Yankee, I am constrained to observe, that there are *very few* counties in Connecticut, or even in Massachusetts, where such audiences could have been collected in such weather, and scarcely one where I could have carried my hearers with me so completely. I say nothing of Vermont, New Hampshire, Maine, or Rhode Island, but have no reason to suppose that these States are in advance of the others. So far as my experience goes, the conviction that science can do much for agriculture, and the disposition to learn from scientific men, does not seem by any means so widely diffused in New England, as in many portions of Western New-York. Yet if they were but aware of the fact, the Yankee farmers need instruction sadly in many points. One of the things most to be sought is, to overcome that prejudiced attachment to certain old courses, which the western man, owing to his location in a newer country, has never formed. There are thus greater encouragements to the advocates of scientific agriculture in attempting to influence a western than an eastern audience, as he knows that his hearers may be more readily brought to see advantage in something that has not been sanctioned by old usages.

In the New England States, and in the State of New York, may unquestionably be found the greater portion of our best farmed districts, and still there are in the farthest advanced of these, striking defects of management. The general fact often presents itself while traveling, and surveying farms, that in the actual cultivation and management of the soil itself, the farmers have not as a class attained that proficiency which they exhibit in the other departments of their practical business. Improved animals have been largely introduced, and we are yearly importing the best sheep, the best cattle, the best horses, and the best swine, that the world can afford, thus constantly contributing to elevate the character of our stock. In the character of our implements, the past few years have witnessed a most astonishing change; the old awkward tools have been made light, efficient, and cheap, in a degree that would

formerly have been thought almost incredible; while busy invention has been constantly employed in contriving such simple and yet effective machinery, that almost every operation can be far more easily and more economically performed than ever before. In the construction of farm buildings, of farm fences and in the feeding of stock, an increasing and judicious expenditure of capital is to be observed. In most of these respects, I do not hesitate to say that we have advanced in a manner worthy of our own great country, in a manner that no farming community has ever surpassed, if ever equaled.

Now I would ask any man of observation, has the soil during this period of rapid progress elsewhere, been improving in a corresponding degree. There are many single farms scattered about the country, where such a corresponding improvement is to be found; there are also a few districts that can be cited as honorable exceptions, but of many others, the most that can be said is, that the quality of the land has remained nearly unchanged. Of the greater number of farms, my own opinion is, that the change has been for the worse; that there are numerous townships in New-York and New England, where the land produces less per acre than it did ten years ago. The reports of many reliable practical men bear me out in such a conclusion, and any reader who doubts my correctness will, I venture to say, be soon satisfied if he institutes a strict inquiry in his own county or State.

It is obvious then, that if these remarks are correct, the land itself has not been so much the subject of improvement as the stock which it supports, or the implements which are to till it; that in short, it is not at present, as I said at first, generally so good, as are our animals and our tools. We often see this exemplified, by the presence of fine cattle, sheep, or horses, on farms that are constantly growing poorer and poorer, as to their productive power.

This seems to me like beginning, in part at least, at the wrong end; I would be the last one to discourage the improvement of our stock, but think that the soil should be brought up at the same time.

The necessity of this I wish to impress with especial earnestness upon the farmers of the West, where the land is still for the most part fertile, and in no case exhibits the utter exhaustion which may often be seen at the East. The western farmer should consider that he has not only to better his stock and implements, but that he has also, as an equally important duty, to keep his land up, and even improving; if it has already begun to fail, let him turn his attention above all things else, to restoring its productiveness. The land is the foundation of the farmer's prosperity; if that is fertile, and kept in good order, all the other requisites of profit and of good farming, will naturally follow.

If the farmers of the west will be warned in time, if they will pursue the course which even a trifling amount of study will make plain, they will never find themselves called upon to engage in that slow and toilsome process of renovation, which has become so necessary in the older States.

In the counties which I have visited, and which have furnished the subjects of the three foregoing letters, nature has provided exhaustless supplies for restoring and

improving the soil; in the hollows and swamps, lie deposits of muck and marl, which will one day be more valuable than gold mines in their effect upon the true prosperity of that region. A vast part of the richest land is lying idle from the mere presence of water, and it was a source of satisfaction to me, that the present race of exhausting farmers, too many of whom yet remain, there, do not know enough to touch it. They look upon it with contempt, and will leave it for their more skilful successors to subdue and cultivate; these will not only do this, but will find enough surplus material to enrich the worn out uplands to which their predecessors have confined themselves. I might continue upon this topic with interest to myself, and as I think with advantage to your readers, but lest they should disagree with me in this latter opinion, will turn to some other subject in my next letter. Yours truly. JOHN P. NORTON.

DOMESTIC ECONOMY.

Washing Fluid.

EDS. CULTIVATOR—Take one pint alcohol, one pint spirits turpentine, two ounces ammonia, (hartshorn,) one ounce camphor gum; mix all together, and bottle—cork tight—shake before using.

DIRECTIONS FOR USING.—For every five gallons of water, about milk-warm, add one pint of soft soap; then put in three table spoonfuls of the preparation. Soak the white clothes thirty minutes; then rinse or wring them out, rubbing them where the most dirt appears. Then put them into clear, cold water, without soap, and boil thirty minutes, and rinse them in clear cold water. The same preparation will answer for colored flannels and calicoes. Soak them thirty minutes, rub and wring them out. Then pass them through the water in which the white clothes were boiled, which will cleanse them sufficiently for rinsing.

This is a method which has been practiced in my family for some months, and I think it superior to any other I have known. It makes a great saving of time and labor. JULIA E. HANCHET. *West Stockholm, N. Y.*

Pine-Apple Cheese.

A summary of the mode of making this cheese, as practiced by Mr. ROBERT NORTON, of Rushford, Allegany county, N. Y., is given in the journal of the N. Y. State Ag. Society, from which we take the following. It appears that Mr. N. is from Goshen, Ct., and he is probably a relative of Mr. LEWIS M. NORTON, of that place, who was the first manufacturer of pine-apple cheese in this country. The particulars of his mode were given in our volume for 1845, page 283.

"His curd is kept until its age brings it into the same chemical state that is produced by a thorough scald; after which it is cut into pieces one inch long and three-eighths of an inch square, by a machine which works up 20 lbs per minute; after this it is warmed by water to 90°, and salted at the rate of 1 lb of salt to 50 lbs of curd. The pine-apple cheeses are at first pressed smooth with a neck projecting from the lower end, to which the pressure is applied. The impression is made by a net, which is stretched on by a screw, after softening the cheese in hot water. This toughens the rind and insures the cheese a safe arrival after a long voyage. The Norton cheese is in very great demand by California shippers. The

shipping cheeses weigh about 10 lbs. each, and are pressed in tin hoops, in perpendicular columns, containing nine cheeses each."

Recipes for using Indian Corn Meal.

We take the following from a pamphlet published by the Atlantic Dock Mills Company, Brooklyn, N. Y., in relation to Stafford's process for drying Indian corn, and the various modes of preparing it for food. Mr. Stafford, it will be remembered, is the inventor of a valuable process for drying grain by steam, several notices of which have been giving in previous numbers of our journal. The company above mentioned now use Mr. S.'s process in preparing their articles:

PLAIN BAKED PUDDING.—One pint of corn flour, one quart milk, half a pint molasses, a teaspoonful of salt. Mix together cold, in the dish in which it is to be baked. Set it in the oven, and stir occasionally until it begins to cook. Bake an hour and a half. Eat hot with butter or sauce.

EGG PONE.—Three eggs, a quart of corn flour, a large tablespoonful of fresh butter, a small teaspoonful of salt, a half pint (or more) of milk. Beat the eggs very light, and mix them with the milk. Then stir in, gradually, the corn flour; adding the salt and butter. It must not be a batter, but a soft dough, just thick enough to be stirred well with a spoon. If too thin, add more corn flour; if too stiff, thin it with a little more milk. Beat or stir it *long and hard*. Butter a tin or iron pan. Put the mixture into it; and set the pan immediately into an oven, which must be moderately hot at first, and the heat increased afterward. A Dutch oven is best for this purpose. It should bake an hour and a half or two hours, in proportion to its thickness. Send it to table hot, and cut into slices. Eat it with butter, or molasses.

GRIDDLE CAKES.—The following is called "Masters' Recipe," and it will be found one of the best, if not the master receipt, for making griddle cakes.

One and a half cups of corn flour, scald with boiling water, one pint milk, one cup of wheat flour, three eggs. Stir in the yolks; beat the whites to a stiff paste before mixing. One teaspoonful of carbonate of soda, and salt to suit the taste.

MAKING CANDLES.—Experience of Mrs. T——, of Ohio. Prepare small wicks of the best wick yarn, and, after being prepared, completely saturate them in clear spirits of turpentine; then dry them thoroughly, before the tallow is applied. Candles made in this way will burn much clearer and last much longer than without the spirits of turpentine.

HOW TO MAKE A GOOD CUP OF TEA.—M. Soyer recommends that, before pouring in any water, the teapot, with the tea in it, shall be placed in the oven till hot, or heated by means of a spirit lamp, or in front of the fire (not too close, of course,) and the pot then filled with boiling water. The result, he says, will be, in about a minute, a most delicious cup of tea, much superior to that drawn in the ordinary way.

POISONS.—Vessels of copper often given rise to poisoning. Though the metal undergoes but little change in a dry atmosphere, it is rusted if moisture be present, and its surface becomes covered with a green substance—carbonate or the protoxide of copper, a poisonous compound. It has sometimes happened, that a mother has, for want of knowledge, poisoned her family. Sour-kraut, when permitted to stand some time in a copper vessel, has produced death in a few hours. Cooks sometimes permit pickles to remain in copper vessels, that they may acquire a rich green color, which they do by absorbing poison. Families have often been thrown into disease by eating such dainties, and may have died, in some instances, without suspecting the cause.—DR. THOMPSON.

The Horticultural Department.

CONDUCTED BY J. J. THOMAS.

Items in Fruit Culture.

TRIMMING DOWN LISTS.—Thomas Rivers, the celebrated English nurseryman, has fruited about one thousand varieties of the pear, and out of this great assemblage has selected only four for raising extensively for market on his own grounds, viz: *Bartlett*, *Beurre d'Amalis*, *Capiaumont*, and *Louise Bonne of Jersey*. In this country, the *Bartlett* and *Louise Bonne of Jersey*, are not excelled for the same purpose; the other two might be profitably superseded, as they are not of first quality here.

EARLY JOE APPLE.—So very agreeable to the taste is this new delicious summer fruit, that we have heard Jonathan Buel of East Bloomfield, N. Y., who has long cultivated it, remark that he had seen a man eat a half peck of them at one time, by taking up one after another, before he was aware of the quantity he had consumed.

SHORTENING-IN THE PEACH.—We lately witnessed an interesting example of this operation performed by the frosts of winter. A tree of the *Early Anne*, planted about ten years ago, stood in so frosty a locality, that about one-half of each of its annual shoots were destroyed by frost every winter, this variety being more tender than most sorts. The consequence was that this tree was kept in a comparatively neat and compact form, with the bearing shoots quite evenly distributed throughout the head. Other sorts more hardy, standing side by side, and which had not been subjected to this natural shortening-in, had extended their principal branches into long and naked arms, with the fruit-bearing portions at their extremities only.

GRAFTING WEDGES.—In cleft-grafting, as every grafter knows, a good iron or steel wedge is wanted, to keep the slit open till the graft is inserted, and accurately adjusted. One of the largest sized cut-nails or cut-spikes, ground to a wedge upon a grindstone, has been found one of the cheapest and most convenient for this purpose, the head of the nail serving a good purpose in withdrawing the wedge.

RECOVERING DRIED GRAFTS.—It often happens that grafts of particular fruits are received in a dried or withered condition from being badly packed; and being supposed to be worthless, are thrown away. The writer once received in autumn a small package of a new and rare sort of apple, from a distance of some hundreds of miles, without any protection at all, and they were quite thoroughly *seasoned*. They were encased in moss, and buried a few inches beneath the surface of the earth on a dry spot of ground. By spring they had gradually imbibed moisture, and had become plump again, and on being set, every graft grew. Efforts of this kind often fail in consequence of applying the moisture too copiously and suddenly. Shoots in so withered a condition should receive it so gradually as to require some weeks at least for the completion of the process.

SHORT LISTS.—Samuel Walker, President of the Massachusetts Horticultural Society, says that if he were confined to only one sort of *pear*, he would choose the *Vicar of Winkfield*, from its free growth, productive-

ness, fair and large fruit, and long continuance. F. R. Elliott, of Cleveland, says that were he to choose but one variety of the *apple*, he should take the *Belmont*. Robert Manning of Salem, Mass., gives as the three best pears, the *Bartlett*, *Autumn Paradise*, and *Winter Nelis*; and B. V. French, of Braintree, Mass., regards as the three most desirable apples, the *Porter*, *Rhode Island Greening*, and *Baldwin*.

HOW LONG WILL BUDS KEEP?—This inquiry is often made, how long will scions for budding keep with safety, and to what distance may they be sent? The answer must vary exceedingly with circumstances. If the growth is green and succulent, and the buds have not become matured, they are sometimes sensibly injured by being kept two or three days only; while on the other hand, if the wood is well ripened, and the buds plump and hardened, they may keep several weeks without injury. In some instances we have received buds from a distance late in summer, and being well matured we have kept a part over till spring, and set them as grafts with success.

INFLUENCE OF GRAFT ON STOCK.—Dr. Kirtland says "A graft of the *Newtown Pippin* will invariably render the bark of the stock rough and black, (the habit of the variety,) within three years after its insertion." Nurserymen, who by digging up trees, become familiar with the growth of the roots, often notice that certain sorts always have certain peculiarities, on stocks of whatever sorts. For instance, the *Yellow Bellflower* always has fine, fibrous, horizontal roots; the *Gravenstein* has large, strong, descending roots; the *Yellow Spanish Cherry* is remarkable for its large heavy roots, whatever the stock may be.

LONG LISTS—GOOSEBERRIES.—The catalogue of the London Horticultural Society enumerates 149 sorts of the *Gooseberry* regarded as worthy of notice; and Lindley gives a list of more than 700 prize sorts. A selection of probably one dozen might be made from these, which would embrace all that is desirable, the others either very closely resembling them, or else being inferior in quality.

DWARF FRUIT TREES.—It may be questioned whether a very extensive introduction of dwarf trees will succeed so well in this country as some anticipate, until those generally who plant trees, learn to give them better cultivation than they now commonly receive, dwarfs indisputably requiring good treatment. And yet they may prove better adapted to some soils than trees on common stock. Dwarf pears have in various instances withstood the severity of winter, or made fine growth, in localities where trees on pear stocks have perished or not flourished. Lindley found that in the chalky soil at Rouen, the cherry on cherry stock was languid and sickly, while it was healthy and vigorous on the *Mahaleb* stocks. Would not this stock be worthy of trial in those portions of the western States where the cherry has proved so difficult of culture?

SHORTENING-BACK IN TRANSPLANTING.—The Horticulturist states that an orchardist on the Hudson tried an experiment by planting out 78 peach trees of large size, three years growth from the bud. One half were headed back so as to reduce the buds one-half; the rest were unpruned. The season was dry, and twelve of the 3°

unpruned trees, perished, and only *one* of those that were headed back. This one would probably have survived, had three-fourths instead of one-half the buds been removed.

MULCHING.—A correspondent of the Horticulturist mulched 50 trees out of 150, all of which had commenced growth alike. Those which were mulched all lived. Of the hundred not mulched, fifteen perished. The weather was hot and dry at midsummer.

MANIA FOR NEW PRODUCTIONS.—A new fruit or flower of great merit may be profitably bought by a nurseryman at an apparently extravagant price, for extensive propagation and dissemination among the public. Hence fifty dollars for a small tree of the Stanwick nectarine, or five dollars for a plant of the Diana grape as long as one's finger, may not be wild. The purchaser of Wilder's two splendid new Camellias, at 500 dollars each made a large profit, by selling the increase at less than a tenth to other nurserymen. But there are many new and worthless things also offered at high prices to the public, and some knowledge is needed to discriminate. We laugh at the famous Tulip Mania which prevailed in Holland a century ago, when single roots sold for 2000 to 5000 florins, and which, as E. D. Mansfield remarked, in his address before the Cincinnati Horticultural Society, "was nearly as strong as the Lind Mania now in New-York;" and yet a very large portion of the horticultural public in these States are almost continually and as thoroughly deceived, though on a smaller scale—a long list of these impositions might be given. The remedies are, an increase of general information, and caution.

FRUITS CHANGED BY CLIMATE.—No deterioration of fruits appears to have been greater than in American peaches, taken to England. Of fifty sorts, from the middle and western States, tested at the great Chiswick garden, all but two were pronounced "worthless."

Brief Hints for the Season.

There are a few cultivators of fruit, scattered through the country, who excel all their neighbors in the success which always attends their labors. Every thing they set out, grows and everything that grows, advances with vigor and health. There seems to be a sort of *good luck* attending all that their hands touch. Now, it happens that their good luck is the fruit of diligence—their success is the result of labor—real, hard-handed, well applied labor. When a tree is transplanted, every part of the work is done well, nothing is slighted; the soil into which it is set is well and deeply enriched; and, most of all, their trees are not neglected afterwards, but constant, clean, and enriching cultivation, keep up what is well begun.

Now we have noticed that one great reason why all this essential labor is slightly and badly performed by the unsuccessful cultivator, is that he crowds too much into a small portion of time. He undertakes to do in one day that which would require a week to perform properly; and he omits some essential preparations till the moment arrives when it is too late to perform them. During the present period there are a number of important particulars which if now attended to, would lessen

the pressure of business when spring opens, and contribute greatly to success.

If trees are to be set out, a good quantity of the necessary enriching materials are to be procured and deposited where wanted; the place for each tree may be marked, and old manure, or still better, a good compost, deposited in heaps in sufficient quantity. We have known apple trees to thrive admirably, by first digging large holes, say seven feet across, and then mixing well by means of an iron rake a quarter part of old rich manure with the soil as it was returned to the hole—leaving enough space at the center to place the roots without bringing them into actual contact with the manure. Trees so treated, with good subsequent care, have borne a bushel each the fifth year.

A most excellent manure for fruit trees, whether newly transplanted or otherwise, consists of about two-thirds swamp muck, and one third of stable manure, with a small portion of ashes, leached or otherwise. As this requires some time for working over, the materials should be timely collected; and in some instances it may be done now to advantage.

Trees which are of feeble growth have been immediately restored to vigor by spreading a thick coating of old manure (or new, if old could not be had) in a broad circular space round the tree, during winter, with a portion of old ashes, and then spading in early in spring. The spading should be *as deep as practicable*, without injuring the roots. Three or four inches of manure, for apple, pears, and peaches, where the soil was poor, have been of great use. The quantity of ashes should be just enough to cover the surface, say the tenth of an inch thick, which will be about a bushel or two for a large tree, and a half peck to a peck for a small tree.

In top-dressing and spading in manure, one point must be well remembered. The roots spread out from the tree far and wide, generally much further than the length of the trunk and branches put together, and the manure should be spread as far as the roots extend; it will do but little good to confine the application to a small circle just round the foot of the trunk, as too many do, where a tenth part of the roots cannot procure a supply.

Very extensive experience within a few years has proved the eminent advantages of *mulching* young fruit trees, which is commonly done during the early part or middle of summer as the drouth of the season may require. But it is often neglected, or if not neglected, is very sparingly executed, simply for the reason that the material is not to be had at the time wanted. Every cultivator, therefore, who intends to set out or already has, small trees, should if possible reserve or procure in time a copious supply of coarse litter, sufficient to form a dressing around every tree, at least half a foot thick. Much is often thrown aside or wasted in winter, which would be exactly suited for this purpose.

A constant improvement of his selection is an important object with every cultivator of the best fruit. Some new varieties prove worthy of adoption, and a greater number of old ones are found by trial to be particularly suited to certain localities and unfitted for others. Hence, some change of his trees by re-grafting must be going on in every good cultivator's orchard and garden. The kinds must be sought and grafts procured in

winter, and not left till spring when the work would be more likely to be omitted altogether.

There are a number of operations either necessarily to be performed now, or which may be done to great advantage in order to lessen the pressure of spring labors, among which may be enumerated the following: Pruning orchards; shortening-in peach trees; pruning hardy grapes; clearing off the caterpillar eggs from the small shoots of apple and other trees; making labels for marking trees, and thus preventing mistakes in names; and making the various fixtures for gardening purposes, as figured and described in the first number of last year's *Cultivator*.

Hovey's Magazine.

We copy from a late number of Hovey's Magazine, the following interesting scraps, which will doubtless prove acceptable to our readers as well as exhibit the value of this pioneer journal of horticulture, now in its sixteenth year:—

LARGE NECTARINES.—Under the pomological head it is stated that a basket of the *Lewis Nectarine* was exhibited at the Hall of the Massachusetts Horticultural Society, from the grounds of S. H. Perkins of Brookline, the average size of which was about eight inches in circumference. A few were about nine inches, or as large as an Early Crawford peach.

McLAUGHLIN PLUM.—This new variety which originated in Maine, and which has already been very highly commended, bore on the grounds of the editor the past season. He states it to be "the only variety which can claim an equality with the Green Gage," and adds, "we shall be much mistaken if it does not become one of the most popular of all plums." In form, color, and quality, it much resembles the genuine Green Gage, but is much larger in size.

THE "ROUGH AND READY" APPLE.—This is a fine, pleasant and refreshing, but not rich summer apple, of a greenish yellow color, beginning to ripen soon after the Early Harvest, and continuing for several weeks. It has already been described as a new variety under the above name in the *Genesee Farmer*. It has been cultivated in Ontario and some other counties of western New York, to some extent, for the past twenty or thirty years. It would be desirable to know its origin and original name, as the one here given is not pomological, neither is it appropriate, the fruit being remarkably smooth.

SALT FOR THE CURCULIO.—A communication from C. Goodrich of Burlington Vt. gives the following experiments:—Flower pots were filled with garden soil, on which a layer of fine salt, a quarter of an inch thick was deposited. On this bed of salt were laid punctured plums containing eggs of the curculio. The grubs came out of the plums, passed down through the salt into the soil, from which perfect curculios emerged some weeks afterwards. The same result took place when fresh air-slacked lime was substituted for salt, and where soil alone was used. The pots being exposed to the weather, the salt was soon washed into the soil, but there was no difference in the appearance of all the insects.

BEARING TREES FOR SALE AT NURSERIES.—The following passage occurs in a description of Hovey's nur-

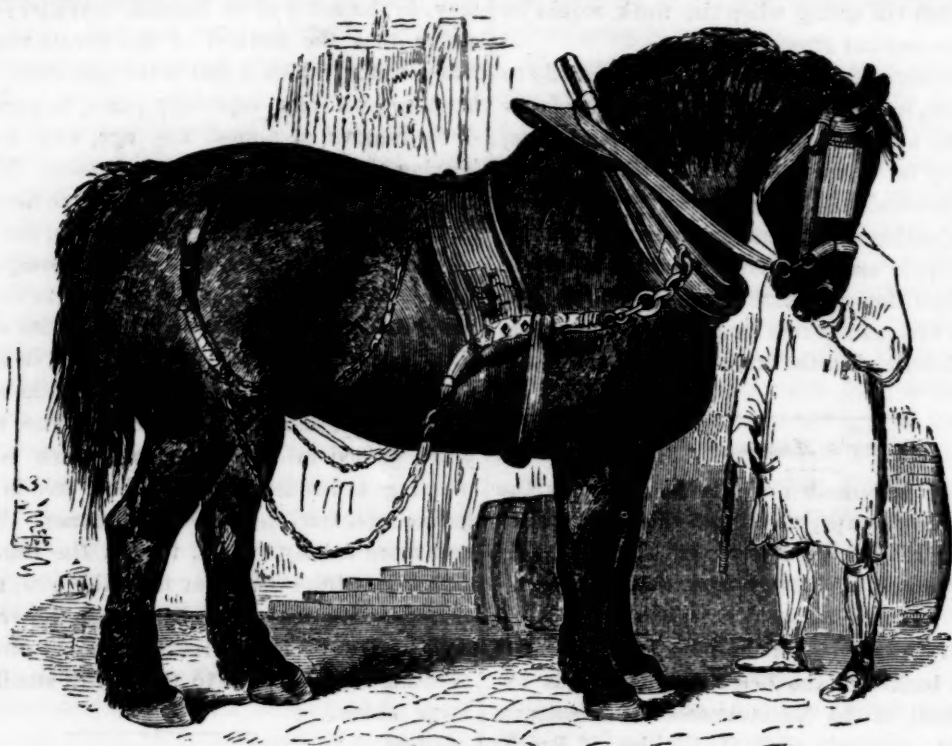
sery, in the notes of an English traveller:—"I was not aware that the method of Mr. Rivers was adopted in this country, which I find is the case here, viz: that of keeping fruit trees, especially pears, in a prepared state, fit for removal at almost any age, with a certainty of bearing a crop of fruit the same season. This is effected by lifting the trees every fall, by which they form a large mass of fibrous roots close to the stem, and they may be carried to any distance, with the sure prospect of bearing fruit the following season, if planted in the autumn. I believe this is the only nursery in America where this method is practiced. But in my opinion it is as profitless a method here as in England—from the same cause—that few gentlemen fully consider the value of a few years gained in their life-time, which is the case by planting a handsome established tree in the fall, and gathering a crop the following summer. But such trees cost more money, "aye, there's the rub." They will rather buy trees one year from the bud, at a low rate, than pay two or three dollars each for trees in a fruit-bearing state. These remarks are not directed to those planting orchards, but to those with small grounds and large means.

Canker or Decay.

A correspondent at Abingdon, Md., writes as follows: "I have near my house some forest trees, which have been barked; and where so injured, are decaying. Wishing to save them, I looked up information on the subject, and found in Forsyth the following directions—for which he received a high premium from Parliament.

"Cut all the decayed parts, smooth the surface, and apply the following composition:—Take 1 bushel of fresh cow-dung, half a bushel of old lime, half a bushel of wood ashes, and a sixteenth of a bushel of sand—the last three articles to be first sifted: work and beat together till smooth—or by adding urine and soap suds, the mixture may be made liquid, so as to be applied with a brush. The mixture being smoothly applied over the wound, dredge on dry ashes, mixed with one-sixth part of the ashes of burnt bones—repeating the dredging every half hour, till all moisture is absorbed—rubbing with the hand till the plaster becomes a dry smooth surface. Will you please say whether you know anything of this method of averting decay? Would not anything that would exclude the air do as well as this mixture?"

The disease termed by English writers *canker*, a sort of gangrene of the bark and wood, does not appear to prevail to much extent here, and consequently we have not proved to much extent the efficacy of remedies. There is no doubt that the above mentioned treatment is one of the very best for anything of the kind which may be of such a nature as to extend or spread. But for *simple decay* caused by bruises, the *shellac solution* would undoubtedly be all that the case would require. We have seen old apple and pear trees, the trunks of which had contained considerable decayed portions, very successfully treated by merely cutting out those portions, and giving the freshly cut surfaces a good varnish of shellac. This varnish is made by simply dissolving gum shellac in alcohol, so as to be of the consistence of paint—keeping it in a large-mouthed bottle, well corked to prevent evaporation; and if the cork is made to form the handle of a brush, the brush being within the bottle, it is at all times ready for use.



THE ENGLISH DRAFT-HORSE.

English Draft-Horse.

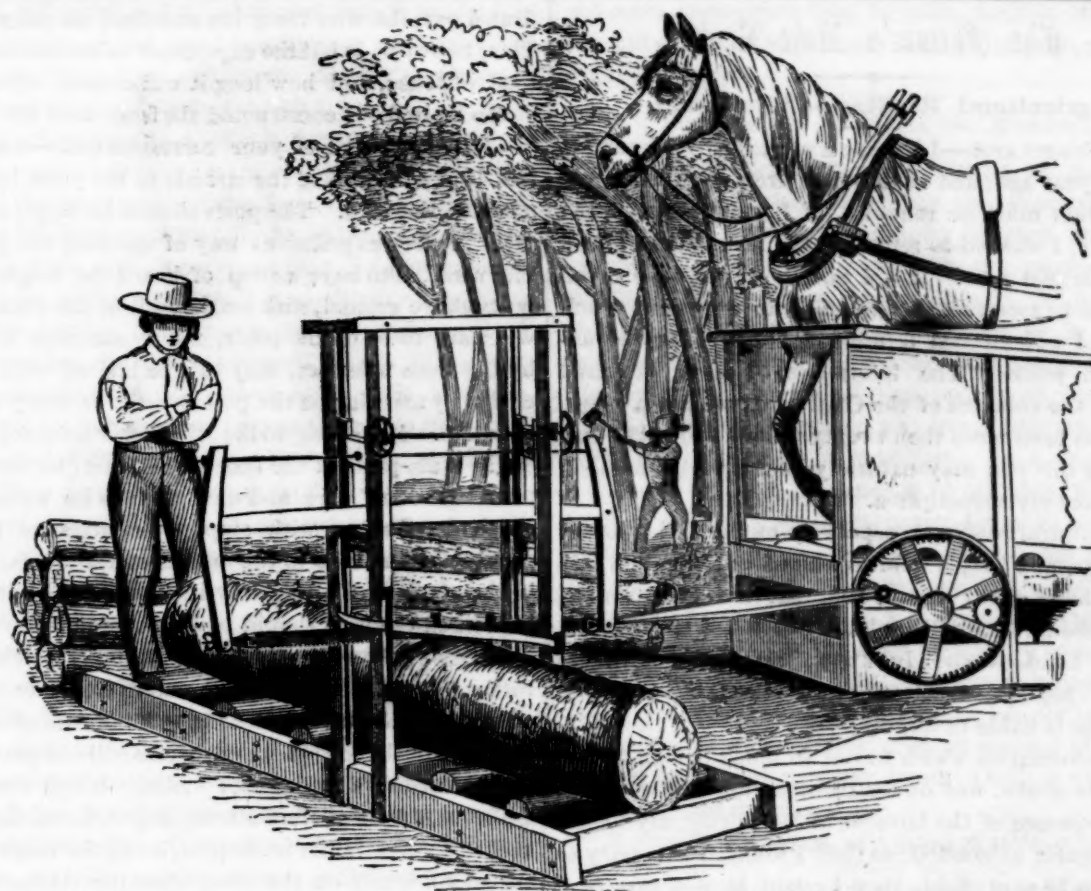
The breeds of horses used in Britain for heavy draft, are the Lincolnshire, the Suffolk, and the Clydesdale. The largest of these is the Lincolnshire, of which the above cut is a representation. They are usually not less than seventeen hands high, and very heavy in proportion. The Clydesdale and Suffolk are of less bulk, but are more active. Although horses of such size are not required for ordinary purposes, in this country, it is, nevertheless, a fact that the introduction of the English draft-horse has been of considerable advantage in improving our stock. In many instances, a cross from this kind of horse has added greater strength, constitution, and an ability to perform more labor in proportion to the expense of keeping, than our stock had previously possessed. Many of our readers will recollect an English draft-horse called *Sampson*, imported several years since by Mr. SOTHAM. Some of the best and most powerful work-horses now owned in this vicinity, are the progeny of that horse. They are of compact form, short-jointed, very muscular, and have a rapid and easy walk. They are also hardy, and easily kept in condition. There is a similar stock of horses in Wayne county, N. Y., derived from a horse of the same name as the above, imported by Mr. ROBINSON, of Palmyra.

At the New-York State Fair at Buffalo, in 1848, a Clydesdale stallion was exhibited, from Toronto, Canada. He was a horse of remarkable activity, for one of so large a size. We are informed that his progeny are highly esteemed as farm-horses. YOUTT observes:—"The Clydesdale is a good kind of draft-horse, and particularly for farming business, and in a hilly country. It derives its name from the district on the Clyde in Scotland where it is principally bred. The Clydesdale is larger than the Suffolk, and has a better head, a longer neck, a lighter carcass and deeper [wider] legs; he is strong, hardy, pulling true, and rarely restive."

Low prefers the Clydesdale to the English draft-horse, chiefly on account of its activity. He says, "They step out more freely, and have a more useful action for ordinary labor. The long stride, characteristic of the breed, is partly the result of conformation, and partly of habit and training; but however produced, it adds greatly to the usefulness of the horse, both on the road and in the fields. No such loads are known to be drawn at the same pace, by any horses in the kingdom, as in the single-horse carts of carriers and others in the west of Scotland."

ROBERT BAKEWELL, of Dishley, whose name stands immortalized as the founder of the New Leicester breed of sheep, commenced his career under great disadvantages: it was not on a sudden that he attained his high celebrity as a breeder. It is recorded of him that the first ram he let out he drove to Leicester fair, and obtained only *sixteen shillings* for the use of him for the season. About the year 1760 his rams did not sell for more than two or three guineas each; and for their hire he received from fifteen shillings to one guinea per head: he gradually advanced his prices, and in 1770 he let some of them for twenty-five guineas. It is said no one ever knew the method on which he made his crosses. His great object was to gain the greatest weight of meat upon the smallest quantity of bone, and to combine this with symmetry of form, early maturity, fine quality of flesh, and a great propensity to fatten. He said, "You may stick a patch on a sheep anywhere." He proceeded exactly on the same principle in his breed of sheep as cattle; viz: the fattening in the most valuable parts of the body, and on the least quantity of food.—*Eng. paper.*

FEEDING.—Always be regular and systematic in feeding your stock. Regularity is the best balance wheel of Agricultural enterprise; derange this, and the machine "runs down." Stated hours and specified quantities—graduated according to circumstances, should invariably be observed. "Neither too little nor too much, too often nor too seldom," this is the true policy. The coarsest fodder should be fed out in mid-winter. Animals have then sharp appetites, and will eat, what would be rejected at other times. In moderate weather, stock may be fed in yards.



CROSS-CUT SAW-MILL AND HORSE-POWER.

Cross-cut Saw-Mill and Horse-Power.

The above cut represents a simple and effective apparatus for sawing wood, cutting off logs, and cutting timber into various forms, by means of horse power. It is manufactured by Messrs. EMERY & Co., of this city, and was exhibited by them at the last State fair. The arrangement is very simple, as it is only necessary to affix a strong wrist, or crank-pin in one of the arms of the large converge wheel, (as shown,) and attaching a connecting rod or pitman to the saw itself, or to a light frame, in which the saw is sometimes strained. If the saw is strained, it may be quite light—about three inches wide and five or six feet long. If it is not strained, it should be stout and strong, and six or eight inches wide, with teeth filed to cut with the drawing stroke, so as to avoid the liability of breaking the saw. The motion as given with the power above represented, (about sixty revolutions per minute,) is found sufficient without any extra gearing or expense.

Mr. P. B. HAVEN, of Sangerfield, N. Y., who has had one of these machines in use the past season, states that two men with a two-horse power, without any change of horses, can readily work up from ten to fourteen cords of hard wood, into lengths of eighteen inches, in a day, and that he has cut off a solid hard wood log, two feet through, in two minutes.

The ease and facility with which this apparatus can be made to perform what has heretofore been a laborious and tedious operation, is another economical application of the power of horses in lieu of manual labor, which deserves the attention of farmers in the lumbering districts, and all those who have wood and timber to be

prepared for market or for use. The arrangement of the machinery is so simple, that it can be put together by any mechanic. The cost of a saw is about one dollar per foot in length; the cost of a one-horse power, which is sufficient for working the saw, is \$80—that for a two-horse power which is better calculated for threshing, &c., is \$110. The expense of the frame or rigging, will vary from five to twenty dollars—making the whole cost of the apparatus, for a one-horse power, from \$90 to \$105, and that for a two-horse power \$120 to \$135. For further particulars inquire of Messrs. EMERY & Co., Agricultural Warehouse, Albany.

BREEDING STOCK.—I seriously tell you that without judgment, without constant application, without great research into the proper characteristic traits of breed and formation of animals, we shall never come to anything satisfactory: I consider *character* the main link in the whole chain of breeding; for without character you have nothing to guide you. Then comes the *touch* or *handle*—this is very essential; and the color of a beast is not to be neglected—it must be in character according to their description. Now there are various kinds of beasts which uniformly support a character in themselves: and I may say the same of sheep. I am not disposed to flatter one breed or disparage another, for I really do think they are all useful in their separate localities.—*Lecture before an English Farmers' Club.*

COMPOSTS.—Lime is a substance which it is an error to use with composts in which we have farm-yard manure. It is equally an error to mix lime with any compound rich in ammonia. The tendency of lime, in all composts, is to promote decomposition and to waste nitrogen, which escapes, by union with hydrogen under the form of ammonia, which is the very treasure of the dung heap, and of most other manuring substances.—*Morton's Practical Agriculture*

The Farmer's Note-Book.

Agricultural Reading---Wire Fence.

EDS. CULTIVATOR—I became a subscriber for your paper one year ago, and as the time drew nigh when my subscription must be renewed, if I would take it the next year, I was led to reflect on the benefit it had been to me the past year. It did not, however, take much reflection to ascertain that I had never expended a dollar since I commenced farming, so much to my advantage and profit. The information I have acquired through the columns of the Cultivator, on but a single point, has been more than twenty dollars benefit to me, and from this you may naturally infer that I concluded to continue my subscription.

Agricultural reading is especially useful to the farmer in two ways: First, it informs him of what he does not know, and of many things, too, that it is quite important he should be familiar with. Second, it reminds him of what he does already know, but much of which, through neglect, carelessness, inattention, or other causes, he is liable to forget.

The information which was of so much benefit to me, referred to above, was on the construction of wire fence. In consequence of the lateness of last spring, my fodder became quite exhausted, so that I found it necessary to divide an 18 acre field, that I might have a part of it for pasture, and the remainder for hay. For this purpose there had to be made a partition fence of about 52 rods, which for a common stake or worm fence would require about 800 rails, besides the stakes. This to me, was quite a consideration, as the timber, which is of a very indifferent quality, stands where it is rocky and steep, and to add to the difficulty, I could find no one that was willing to undertake the job of making the rails under such circumstances.

This was my situation when an article on the construction of wire fence appeared in the pages of "The Cultivator" by one of your correspondents, (I believe A. B.,) in which that kind of fence was much commended, with instructions on the construction of it, cost, &c. I was then just in the mood to fall in with something of the kind, in order to evade the expense and labor of a rail fence. I soon concluded to try the wire at all hazards. While some of my neighbors would dissuade me from it, others would laugh at the idea. They, however, did not feel the importance of having that field divided as I did, and so I went to work, and had the fence completed in a few days, and my horses and cattle put in to pasture, not by the way, without some misgivings, lest they might cross over the wires and save me the trouble of mowing the other part of the field. But this did not prove to be the case. They were confined on that side of the fence where first put, till after harvest, when they were turned in on the other for some weeks. I then opened a gap at one end of the wire fence, so that the beasts could go on either side of it at pleasure. This gap I have shut, by times, and pastured which field I wished to, and although our horses are in the habit of rubbing down stake fences, and getting out, and frequently did so the last summer, though the fences were good, yet with the exception of a few of the staples that fasten the wires being

drawn out, the wire fence has sustained no other injury. This, however, is but the experience of one season in this kind of fence, and how long it will remain effectual, is yet to be told. I constructed the fence after the manner laid down by some of your correspondents—using wire No. 10, and fastening the strands to the posts by staples made of the wire. The posts should be large, and well set. A very expeditious way of marking the posts for the wires, is to have a strip of board the height of the posts above ground, with marks on it at the distances the wires are to be on the posts, and by standing it upright by the posts when set, they can be laid off with keel or chalk, by marking on the post opposite to every mark on the strip. In putting on the wire, after securing one end to the main posts at the end of the fence, let one person take the roll of wire and unwind it as he walks, while another following with staples and hammer in hand, should lay the wire to the marks on the posts, striking in the staples. In this way they proceed to the other end, when the wire should be drawn as tight by the hand as possible; then by attaching a strainer, which in operating may be laid against the outer face of the end post, where it can be turned so as to strain a wire of even 100 rods in length, so that its vibrations will compare in tone to the cord of a well tuned violin. When the wire is sufficiently tight, before attempting to fasten the end attached to the strainer to the post, let all the staples be now driven up firmly on the wire, when the strainer may be detached, or so slackened as to be shifted around the post without any danger of the wire slipping. All that is then necessary to secure the wire after it is bent around three squares of the post, is to drive a few of the staples down on it. The wire should be only partly annealed, as otherwise it is so liable to be frequently bent as to be troublesome in putting up, and is not so substantial when on the fence.

When the posts are set, and before putting on the wire, turn a furrow with the plow on each side, throwing it as close up to the posts as possible, and then by running another, and throwing it with a shovel between the other two, and in range with the posts, will make a ridge so high as to require one strand of wire less, and prevent the frost from reaching the bottom of the posts, and also put the fence in a better position for resisting any attempt by horses or cattle to break through it. JAMES H. ALEXANDER. Near Lewiston, Pa.

Harvesting Machines.

EDS. CULTIVATOR—Noticing a wish that some of your western correspondents would write you about harvesting machines, the following is submitted. There is now in the west about thirty different patents for harvesting and reaping machines. Some of them cut the grain close to the ground—others only cutting off the heads of the grain, with a few inches of straw. The first kind go, generally, under the head of reapers; the latter under the name of harvesters. Of the reapers, McCormick's is the most generally used of any known to me; while of the latter, Esterly's Harvester seems to take the lead.

McCormick's machine requires four horses to work it, one person to drive, one to rake off, and five persons to bind up the bundles. It cuts, in good grain, when well driven, about twelve acres a day, and if the grain stands

up well, will cut it better and cleaner than it can be done with a cradle; if the grain is lodged or crinkled down, it does not do so good a business. It cuts by means of two knives or sickles, one of which is fast, and the other moves backwards and forwards over it. The grain is brought on the knives by means of revolving arms. You can hire the grain put into shocks in this neighborhood, with one of these machines, for \$1.25 cts an acre, which is what it costs with a cradle; so that if a person has to hire it done with a machine, it is no cheaper than to do it with the cradle. These machines cost, I believe, \$125. If a person has one of them himself, he can do it cheaper per acre than the price given here, while he is enabled to get his harvest done in a much shorter time, than if he depended on the cradle. Esterly's Harvesters cost \$300. They require four horses on the machine, and two teams and wagons besides, to get the heads out of the way and stack them. They cut only the heads and six inches of straw, and the machine carries these into a wagon that drives along side of it. One wagon is filled while another is unloading. It requires six men to work them to advantage, and this force will cut and stack from 15 to 20 acres in a day, if the grain stands up well, and the machine is a good one. It is a valuable labor saving machine, where it is no object to save the straw.

The charge for this machine is \$1.25 an acre for cutting and stacking. It is not worth as much to thrash the grain cut with these machines, as that which is cut with the others, or with the cradle. There being nothing but the heads to thrash, they run through the machine much faster than when there is a quantity of straw attached to them.

These machines are well adapted to our smooth, level prairies, and by means of them a farmer is enabled to get through a large harvest in a much quicker time than he could without them; and where he owns the machine, at a less expense. Here, labor in the harvest season, is scarce and high, and consequently these machines, which substitute the labor of horses for that of men, are in demand. TOWNSEND GREEN. Waupun, Fond Du La County, Wisconsin.

Intense Freezing.

At 32° of Fahrenheit, water freezes; but the ice which forms even when the temperature is 20° lower, is unfit to be sent to a warm climate. A gentleman who had much experience with ice, said: "I want mine to be sawed out, taken up, and exposed for a night or two when the mercury is at zero, before it is packed away." Why? Because by this exposure, it becomes many degrees colder and will bear many degrees more of heat before it melts.

Housewives after dressing their poultry, freeze them, and pack them in snow, but too often without considering whether the meat is all frozen hard as a brick, or only hardened a little on the outside. Neither do they always consider whether the snow is as cold as it can be; for though snow is snow, and nothing else, yet it may be intensely cold, or only cold enough to keep from melting—a difference in temperature of 30° or 40°. The first condition may be found of a keen, cold morning, and the latter condition of a pleasant winter's afternoon. The old saying, to make hay while the sun shines, is

not more appropriate than to pack poultry when it is intensely cold, so that it may bear a January, or even a February thaw. X.

Preparation of Bones for Manure.

A great obstacle to the use of bones as manure, in this country, has heretofore been the expense of preparing them. The modes usually adopted, have been to crush them in mills designed for the purpose, or to mix them with sulphuric acid. Latterly the process of pulverizing by steam has been resorted to in Britain, and where large quantities are to be prepared, this plan may be more economical than either of the others named. But we cannot see why bones may not be more cheaply pulverized by fermentation. In a fresh state, they contain a large per centage of nitrogen, which under favorable circumstances, causes them to undergo a strong fermentation. We have known a few instances of their being mixed with unleached wood-ashes, in a heap, with a covering of muck to absorb the gases which might be evolved: the mass soon began to heat, and by being turned over a few times, the bones became sufficiently reduced for use as manure. A writer in the *North British Agriculturist* gives an account of a mode adopted by him for reducing bones which is worthy of notice. He says:—

"A quantity of bones, in a crushed state, was mixed with an equal bulk of common sand, and well watered; the whole was then covered over with a coating of coal ashes, about 6 inches thick; this was done to prevent as much as possible the escape of ammonia. In a few days after I found, however, that the moistened bones began to generate intense heat, which soon brought on putrefaction. The size of the heap next showed to have lessened considerably, and on being examined into the bones were found to have disappeared, save a small portion of the outside; even these were corroded from the effects produced by internal decomposition. In fine, the appearance of the heap was changed to a blue mouldy, gelatinous substance, which, if touched with the back of a spade, or even rubbed between the hands, could be reduced to a fine powdery texture."

Agricultural Papers.

EDS. CULTIVATOR—It is a fact that cannot be disputed and that no person of ordinary observation will attempt to dispute, that in districts where agricultural papers have the widest circulation, the inhabitants, as a general thing, are the most intelligent, and their farms give unmistakable evidence of the greatest productiveness.

The above sentiment has received a full confirmation in our minds by a late visit to a respectable farmer who "began the world" in the capacity of a hired man to "a very good farmer of those days." His history from that time would, if permitted to be fairly written, read thus: From the day that he entered into the service of his employer, until his contract was ended, he was devoted to his interests from whom he expected the reward of labor. Of course, he was none of those laborers who, like too many of the present day, work well while their employer does, and who, if he is called away, conclude they "won't fret,"—night and their wages will come just as well if they take it easy. Business was safe and progressive with him at all times, and under all circumstances; of course, he always would command a good place and goods wages. If the times were hard,

he had employment and the reward, which the exigencies of the times, whether "good or bad," would bring.

In due time he purchased a piece of land, to the cultivation of which he directed his energies, and after a while another and yet another accession was made to his territory, until his domain became as ample as reasonable desires could demand.

When JUDGE BUEL started "*THE CULTIVATOR*, to improve the mind and the soil," a service it has never ceased to perform, agricultural papers were not so common as they are now. They were comparatively few in number and limited in circulation. Consequently agricultural reading was not found at every fire-side. As these papers sprung forth, however, too many looked upon them as "strange innovations" and "sad humbuggery," something that "fellows wrote that could write, but that they did not know nothing about." The farmer under consideration, was not of this class however, for he saw that there was much to learn, in the management of the farm as well as in other professions, to insure the highest success, and if this knowledge came to him in print it furnished no particular objection in his mind to its utility. He of course became a subscriber to number one volume one of Buel's Cultivator, and if any of the readers of this paper or the doubters of the benefit of agricultural papers would visit him now, they would find all the volumes of the work, up to 1851, in his library. They would also, as they looked upon his fields of successful labor and upon his convenient and tasteful barns, his large flocks and antic herds, scattered over the hills around him, hear him quote this work, as the source from which he had gathered such and such information upon the various subjects on which it treats, and the benefits derived therefrom. Nor have his labors ended here. He has induced many others, by telling them through his improved system of farming, as well as orally, of the value of the work, to become subscribers for it, and thereby rendered them an essential service.

Now, when a hue and cry is raised, as it sometimes is, even in this progressive day, against agricultural papers and agricultural knowledge, acquired from books, who shall we believe? Shall it be men like this, born and brought up farmers, and who yet, in spite of all the experience that labor and personal observation can bring, call for more knowledge at the same fountain for long successive years, so well satisfied with the present amount it issues, as to rely upon the same source for more? Men who go on profiting by what they read, as this farmer says he has done, and as his neighbors give assurance of doing by entering upon the same path he is pursuing? Or shall it be those restless, unsatisfied spirits, who never read, unless it be some newspaper story invented to add folly to the nonsense of fools, and who look upon all improvements as useless innovations, satisfied by doing as their fathers did, with out one-half the prospect, through the failure in the soil from the skinning system, of success? Which man, we say, shall we believe, for when two so great opposites are found, one must approach much nearer to the right than the other? We have no misgiving, when we say, that the voice of the people will come up in favor of the man who has taken for a long course of years the agricultural paper. Admitting the fact, there is no question of their

general utility, for if they are a benefit to one farmer, they may become so to every one. Hence the inference is that every farmer should take and read at least one agricultural paper, such a one as is purely and wholly devoted to the subject, and can be conveniently kept in preservation.

Now that not one-half—probably not one-tenth of the farmers take such a publication, even in districts where they are most accessible, we believe no one will doubt. If they do, the post-office will probably teach them their error. But who shall stir up the people to their own interest by urging them up to the work? Publishers and editors cannot do it, for we expect them to be devoting their energies to make the paper as good as possible, therefore they have enough to do. Traveling agents cannot do it effectually, for they are most of the time passing in regions where they are unknown, and so numerous are agents and the characters of the papers for which they operate, that many look upon the whole mass with suspicion, and get rid of them with a frown and a *no* as soon as possible.

The work, then, of getting up these subscribers and extending the progress of truth and improvement, must fall upon individuals in their several towns and neighborhoods. It is not a hard service. Men often meet in their daily operations and as often speak of the successes and disappointments in their ordinary business. How natural at such times to tell of the knowledge gained, and where it was found, and call the attention of others to the particular source. In this way the circulation of agricultural papers may be greatly increased and the cause they advocate receive many a new and successful impulse. WM. BACON. *Richmond, Mass., Dec. 28.*

Pitching Hay by Horse-power.

EDS. CULTIVATOR—I have used a horse pitchfork similar to that represented by a correspondent of the Cultivator for 1848, page 122. It operates as well as there recommended. My object in referring to it here, is to furnish occasion to add, that I have not only succeeded as well as I expected in the barn, but also in pitching on stacks. My method of arranging the machinery for pitching on stacks, is as follows:—

I procured three poles, and chained the small ends together in a proper manner, and raised them in the form of shears, (with a pully suspended at the top,) over the spot where I wanted the stack. The rope to which the fork is attached, is put over the pully before the poles are raised; then under another pully, in the but-end of one of the poles, about two feet from the ground. A stake is then driven into the ground at the foot of this pole, to prevent it from being pulled out. Hitch a horse to the rope, and all is ready.

Two of the poles should be about 33 feet long, and the other 39 feet. The object in having one pole longer than the others is this: When the fork is stuck in the load, and the horse is pulling on the rope, the poles are likely to be pulled towards the load, if they are of equal length; but if one pole is a few feet longer than the others, the load can be driven between the stack and the long pole, and the pole acting as a brace, will make it impossible to pull the three over by pitching. The poles should be as small as can be had of sufficient length, and of some light timber. Mine are bass-wood, about five inches in

diameter at the but. One man can handle them, one at a time, and two men can raise them. P. P. P. *Sylvania, Bradford Co. Pa.*

The Olk Gifford Morgan.

EDS. CULTIVATOR—The friends of this fine horse, the purest blooded stallion of the present generation of the noble Morgans, will have noticed with regret the account of his death, which occurred at this place on the 30th of October last, from inflammation of the intestines. He was 24 years old, but to the last retained and exhibited that graceful form, and splendidly energetic and powerful action for which he was so justly and so widely celebrated. At the request of many gentlemen, he was ridden to the place of the recent sale of the Stickney stock, in the neighboring town of Westminster, Vt., and the distinguished breeders from so many of the northern and middle states, who were there assembled, will well recollect the admiring ecomiums which were there bestowed on him on account of his youthful appearance, and unailing spirit. He was owned at the time of his death by the same company of twenty gentlemen, by whom he was purchased for \$2000, in the fall of 1847.

It is gratifying to know that measures were seasonably taken to secure in the greatest purity, the invaluable qualities of this stock, in which many of the fastest trotting Morgan horses of the present day are to be found, by obtaining, without regard to trouble or expense, the highest blooded Morgan mares which were existing. From these mares and the Gifford Morgan, stock of as high blood as his own, has been bred, and is now owned here. From this stock the Morgan horses will continue to be propagated.

I find it necessary again to remind gentlemen, who are desirous of providing themselves with the true Morgan stock for the purposes of breeding, of the need of using the greatest circumspection to secure themselves against the designs of those unscrupulous persons who are aiming to palm off their horses as genuine, under color of fictitious pedigrees. FREDERICK A. WIER. *Walpole, N. H., Dec. 16, 1850.*

Notes for the Season.

The early part of December 1850, was remarkable for mildness. The first snow of the month, fell on the 6th upon mud, to the depth of one inch. On the night of the 6th, hail fell about three inches; but in consequence of the wetness of the earth, it melted so that only about one inch remained. On the night of the 7th rain, which froze after falling, and hail, fell to the depth of two inches. On the morning of the 8th, the trees were beautifully encased with ice, which remained on during the day—11th and 12th, snow fell 3½ inches—14th, mercury at six o'clock, A. M., 2° below 0; at sunrise at 0—16th, snow 1½ inch—17th, rain during last night, two inches—during the day a fall of three inches of snow, which, freezing into the previous snow, moistened by the rain, makes fine sleighing—19th, snow from S.E. fell 2½ inches—20th, snow from N.W. 1½ inches—sun sets very pleasant—22d, commences snowing at four o'clock 10 minutes, from S.W. The clouds through the day had alternately indicated snow and rain; storms through the night, rain and hail; principally the latter, which con-

tinues to fall until noon the 23d, being furiously driven for the last 12 hours by a N.E. wind,—changes to snow, which continues to fall until 7 o'clock, P. M.,—prevailing wind since noon, N.W. The depth of hail, which fell in this storm was four inches, which makes an unpleasant crust in the woods and open fields. In many places it is blown together so compactly, as to bear a horse. The quantity of snow that fell in the same storm was nine inches, which is considerably though not badly drifted—24th, a very cold morning; mercury at 6 A. M., 9½ below 0; at sunrise 9° below 0; at 9 A. M., 6° below 0; at 3 P. M., 4° above 0—25th, snow 2 inches—28th and 29th, 6½ inches—31st, at sunrise, the mercury stood at 10° below 0—which makes it decidedly the coldest morning in the season.

The number of days in the month in which there has been more or less storm, is 15—leaving days without storm 16. The quantity of snow and hail which fell during the month, was 37 inches, of which now remains after deducting what melted as it fell in consequence of the wetness of the earth, and what has melted by rains during storms, leaves the present amount 25 inches. The number of days entirely cloudy, during the month was 10—of entire clearness four. W. BACON. *Richmond, Mass., Jan. 3, 1851.*

Premium Cows—Butter, &c.

WM. S. LINCOLN received the premium of the Worcester county (Mass.) Ag. Society in 1850, for the "best three cows from a stock of not less than five." The quantity of butter made from each of these three cows during the first nine days of June, was as follows: No. 1, 17 lbs. 12 oz.; No. 2, 9 lbs. 4 oz.; No. 3, 10 lbs. 6 oz. The quantity made from the same cows during the first nine days of September, was—No. 1, 12 lbs. 12 oz.; No. 2, 4 lbs. 4 oz.; No. 3, 6 lbs. 6 oz.

JOHN N. WHITNEY received the premium for the "two best cows kept with a stock of not less than five." In the first nine days of June, the butter made from one of these cows, was 15 lbs. 8 oz.; that from the other 17 lbs. In the first nine days of September, one of the cows gave 10 lbs. butter, the other 12 lbs. The feed was pasture only.

WINTER MANGEMENT OF COWS.—Mr. LINCOLN gives the following in relation to the management of his cows in winter:

"They are stabled, are fed at regular hours, have a good bedding at night, are cleaned every morning with the *curry-comb* instead of the *card*, are kept stabled except for two or three hours in the middle of the day, if fair weather—if stormy they are not out, except a sufficient time, morning, noon and evening, to allow them to drink. Milch cows should be kept *warm* and *dry*. The hay given to the cows is of ordinary quality, and each cow is fed with from one to two pecks of carrots per day. The butter made in winter, by the aid of carrots, is fully equal in *color* and *sweetness* to that made in June. The milking and care of my stock, is attended to by myself unless prevented by sickness or absence—milking throughout the year uniformly at six o'clock in the morning and six in the evening."

MODE OF MAKING BUTTER.—"Except in the extremes of summer and winter, the milk is kept on the ground

floor of the house, in tin pans; remains from 36 to 48 hours, when the cream is taken off and put in large stone pots; water is placed in the churn and stands over night; the cream is churned slowly but steadily; the butter is washed in cold spring water; the butter-milk is worked out, and the salt worked in—stands 24 hours when it is again worked and lumped. We use a 'butter worker,' and generally add three-fourths of an ounce of salt to a pound of butter. We think the butter is firmer, more waxy and even, if the churning occupies from 45 to 60 minutes, than when brought in less time."

Agricultural School.

GOVERNOR HUNT, in his message to the Legislature of this State, calls attention to the importance of establishing an Agricultural School and Experimental Farm. He says:—

It cannot be doubted that an institution of the character proposed would promote the dissemination of agricultural knowledge and elevate the condition of the people. In its formation I would recommend an additional department for instruction in the mechanic arts. Identified in interest, each imparting strength and vigor to the other, the agricultural and mechanical classes combined may be said to constitute the substantial power and greatness of the commonwealth. The free spirit of our institutions and the incentives to effort in which this country abounds, are peculiarly favorable to the development of inventive genius and rapid advances in the useful arts. Our unparalleled progress may be attributed in no small degree to the successful skill of our Artizans in originating and perfecting the varied improvements which increase the productiveness of labor in most branches of human industry. Yet from the nature of their pursuits and the necessity which subjects them to a life of toil, too many of our youthful mechanics are deprived of those means of intellectual improvement which the State has provided for other professions. The beneficial effects of an Agricultural and Mechanical School will not be limited to the individuals who may participate directly in its privileges. The students graduating from such an institution, elevated in character by moral and intellectual training, and endued with that knowledge of the natural laws and practical sciences which unites manual labor with the highest exercise of the reasoning faculties, will become teachers in their turn, imparting to those around them the light of their own intelligence, and conferring dignity upon the common pursuits of industry by an honorable example to usefulness in their varied occupations. The elevation of the laboring classes is an object worthy of the highest ambition of the statesman and the patriot. Under our republican system of Government the political power of the State must always reside among the men of industry and toil, whose virtuous energy is their best patrimony. The intelligence which qualifies them for the duties of self-government, affords the only sure guarantee for the perpetuity of our free institutions.

The Potato Disease.

EDS. CULTIVATOR—In your number for September I brought down the history of the potato disease for the present year, to August 10th. I remarked in that article, that "I anticipated painful results." Painful indeed, they have been. Many fields around me are not worth digging. So uncertain has been the condition of potatoes, that consumers in our city, until quite recently, have been afraid to purchase more than the supply of a day or two at a time. It may be hoped that time has so far purged our fields, that the portion of the crop now sound, will remain so during the winter, if wisely stored.

I. CAUSES OF INCREASED SEVERITY.

In my last article in your paper, I observed, that the disease is, this year, "more obviously connected with *hot* and *wet* weather, and less with that which is *cold* and *windy*, than in former years." Indeed, I consider that this last cause is what has given the disease this year, its frightful malignity. The effect of it was to cover the herbage of the potato with a white mildew, which not only destroyed the leaves, but also to a considerable extent, the solid stems; and often, also, the seed balls, and the very foot-stalks on which they grew.

The obvious effect of such mildew would be, not only to destroy the elaborating process of the plant, but also to throw into the circulation a mass of half elaborated and poisoned matter, quite sufficient to corrupt the tubers, aside from the influence of the ordinary causes of disease which had been previously operating, as detailed in my last article. That article was closed in the midst of that weather, and before its effects were pointedly seen.

The melon, tomato, corn and other tropicals, bore it without much injury, as it is just what they are liable to in their native regions, especially during the annual "rainy season." But the potato, being a mountain plant, and so accustomed to a cooler, dryer, and purer atmosphere, was well nigh destroyed by it. A friend of mine, who recently spent some time in New-Grenada, says that "the climate around Bogota, where the potato is grown in the greatest perfection, is not warm enough to produce melons and tomatoes in perfection, so that they are usually brought on the backs of mules from the low and hot regions; and that the thermometer does not vary, during any one day, more than five degrees. Frosts, and our high summer heats, are there equally unknown; and the cabbage and pepper live through the whole year, and are, there, biennial plants."

We, by endeavoring to grow the potato in a soil and climate hot beyond its constitutional requirements,—one adapted, during the season of growth, to the melon, tomato, &c., have outraged its capabilities. This, with a failure to renew it frequently from the seed-balls, has brought it to the verge of ruin. Nor should it be forgotten, that in our anxiety to get large crops, and large tubers, we have grown it in too rich a soil, which, taken in connection with the preceding causes, has overworked the excitability of the plant, and made its structure open and vascular, like a hot-bed production. Hence it feels changes, through which, even in this unsteady and ungenial climate, it once passed in comparative safety. I have taken the ground, in my Essay on the Potato Disease, (published in the "Transactions of the State Society for 1847 & 8,) that the potato, in most of its constitutional requirements, ranks, not with tropicals, but with the cereal crops, and the hardy fruits and vegetables of temperate and cool climates. In harmony with this position, the hot and wet weather which gave the finishing impulse to the potato disease this year, rotted the fruit of the plum before it was ripe, and defoliated its branches.

The fruit of the peach was also occasionally injured. Grapes, whether foreign or native, especially where they grew most luxuriantly, were very generally affected, the leaves frequently falling before the fruit was ripe, and

the summer's growth, especially in the case of luxuriant grafts, frequently nearly all perishing on account of the immaturity of the wood when the leaves fell. Turneps that mature in the middle of the summer, and winter cabbage, that was cut early in the fall, were both extensively affected by decay. Had this weather occurred a few weeks earlier, it would undoubtedly have resulted in the rust of the wheat crop.

II. OTHER INTERESTING FACTS.

1. *Mowing off the Vines.*—On the 24th of August, soon after the close of my last article, I mowed off the vines on about one-half of an acre which had been planted a little later than my main crop, and where the vines had suffered less from the mildew, than some others. The result was the saving of the tubers almost entirely from the rot. Had I mowed a little earlier, I think they would all have been saved.

2. *Effect of shade.*—The shade of high fences, trees, and hedges, just as in former years, had a very manifest influence in moderating the effect of disease. These protections were on the east and south-east sides of the portions of the crop benefitted. The beneficial results were due obviously to the moderation of the morning heat, after a season of cold chills.

3. *Early and rapid Disease least Injurious.*—My largest plat of potatoes embraced about two acres. The soil was a light gravelly loam,—a fair soil for corn, but too much wanting in vegetable matter to be well adapted to potatoes. Its shape was a parallelogram. Across one end, and including about one quarter of the plat, I applied leached ashes, (mixed with soda ash,) from the soap-makers. One side of this piece was planted with Early Pink-eyes, and the other with Carters. Although the soil was naturally very light and dry, yet the effect of the ashes, in connection with the frequent and heavy rains of the season, was to keep the soil much more moist than that of the remaining portion. On the three quarters of the field, where no ashes was applied, the potatoes of both sorts, died early and most rapidly; and when dug were sound with very few exceptions; although they were small and few. The fatal impression of disease was here made I think, by the ordinary causes, i. e., sudden changes of heat and cold. The suddenness and power of disease here seemed to act like the scythe, in a preceding case, i. e., it cut off communication with the tubers, and so prevented the transmission of morbid matter. On the portion where the ashes was applied, the crop grew stronger, died a slow and lingering death, and in the autumn were scarcely worth digging, so badly were they diseased. It may be asked how the slower death of this richest portion of this plat is consistent with the common, and undoubtedly true doctrine, "that the rankest growth is usually most early and rapidly diseased." I answer, that the moister and therefore cooler position of this portion saved it somewhat from the influence of the ordinary causes of disease that so fatally affected the other portion, and at the same time, the more fatally exposed it to the later impulse of disease, i. e., hot rains. These results of early and rapid disease are also parallel with the experience of former years. See the essay for 1847.

4. *Reported Exemption from Disease.*—In the season of digging potatoes I heard of a large cultivator of po-

tatoes, in a neighboring town, whose crop had escaped disease. Pleased with so grateful intelligence I hastened to the spot. I found about fourteen acres, planted with "western reds," on a very light sandy soil. The crop was indeed sound, with few exceptions, say about one diseased potato to ten hills; but then the owner had to acknowledge that the crop "had been early struck with the rust," as he called it. Certainly the yield was small. The degree of exemption from disease in this case probably resulted from two causes—a high degree of comparative vitality in the sort planted, and the rapid action of disease operating as in my own experience above in the case 3.

III. HOPE FOR THE FUTURE.

Admid all this gloom the farmer should not utterly despair. Even with our present feeble varieties for seed it is, to me, highly improbable that the next year will be as bad as the present has been.

Those who keep records of the weather will, I think, justify me in the assertion that, the extreme wetness of the past summer, and the damp and hot state of the atmosphere, much of the time, from July 14th to August 21st, constitute it the most severe season for the potato experienced for many years: at least the most so of any that have occurred since the first appearance of the disease in 1843. Many fields of new soil, such as were well stored with vegetable matter, and were of that simply moist character which past experience has proved most congenial to the potato, have proved so wet, this year, as almost entirely to fail of a crop. The same has been true of clay soils generally.

On the other hand, soils constitutionally very dry have proved amply moist. In view of the constitutional requirements of the potato, and of the peculiarities of the season, peculiarities affecting not the potato alone, but also many other vegetables, I hesitate not to say that had the potato been possessed of all the vigor which it had fifty years ago, it would nevertheless have been diseased this year. C. E. G. *Utica, Dec. 1, 1850.*

Cattle Show of the Smithfield Club.

The annual show of this association came off at London on the 11th, 12th, and 13th of December last. It exceeded in numbers that of any previous year. There were sixty more entries for cattle, and twenty more pens of sheep, than in 1849. The prizes for fat oxen and steers were chiefly carried by the Herefords and Devons. A Hereford steer two years and ten months old, received the gold medal as the best ox or steer in the show, as well as a prize of £25, and a silver medal to the feeder. He is spoken of as a most beautiful and symmetrical animal, and was sold to a butcher for £68, (about \$340.) The gold medal for the best fat cow was awarded to a short-horn, five years old. The first premium for pigs was awarded to Wm. FISHER HOBBS, for specimens of the Essex breed. One of this lot, which, from having received an injury on the way to the show, was slaughtered, weighed, dressed, 521 pounds. It was seventeen months old. Prince ALBERT received a second prize for pigs. They were of the Yorkshire breed. The Duke of WELLINGTON was an exhibitor for the first time. He exhibited a curious animal—a fat cow, a cross between the Scotch Highland cow and the Bramah bull. The show was

visited by the Queen and most of the royal family. The *Mark-Lane Express*, in speaking of the show observes:

We believe it will be universally admitted that the exhibition of animals at the show of the Smithfield Club last week was very much superior to any which preceded it; not only was the number of animals greater, but their general character was of a superior order. That a great improvement has taken place in the evenness which the animals show, as compared with those exhibited some years since, is very manifest. The patchiness, so common ten years ago, is now rarely seen in well-bred animals. Some persons are inclined to ascribe this improvement to a change of taste on the part of the feeders, who are no longer partial to the "mountains of tallow" which they formerly seemed to admire. We, however, are not disposed to ascribe any alteration which has taken place to such a cause; we believe that the art of fattening animals has greatly improved, and we are also of opinion that the frame of the animal to which that art is to be applied has itself been rendered more suitable for the purpose through the skill of the breeder, and we are inclined to give credit to the exertions of the Royal Agricultural Society, and other societies of a like description, for having been instrumental in attaining that end through the encouragement afforded to the breeders of live stock. It matters little which particular breed of animal may obtain the superiority as regards the number of prizes awarded to it at any single show, inasmuch as it will be seen that of the two breeds exhibited in the greatest number on these occasions, namely, the Short-horns and Herefords, upon an average of seven or ten years there will be but little variation. A singular circumstance has, however, been pointed out to us by a correspondent, which will be regarded with interest by the respective advocates of the two breeds alluded to. It appears that the Hereford ox belonging to Mr. Heath, to which the gold medal was awarded, is of exactly the same dimensions as the short-horn steer belonging to Earl Hardwicke which obtained the first prize in Class 2; the former being, according to the catalogue, just one year younger than the latter. Thus, then, the Hereford steer of two years and ten months old attained the same bulk which the short-horned reached in three years and ten months. It is true the Hereford ox in question was a most extraordinary animal; but regarding it as such, it shows what the breed is capable of.

ANSWERS TO INQUIRIES.

KIDNEY-WORM IN SWINE.—J. D., Wisconsin. The presence of kidney-worm may generally be known by the animal appearing weak across the loins, and sometimes by a weakness in one or both hind legs. As soon as these symptoms appear, give the animal corn soaked in lye of wood ashes, or strong soap-suds; at the same time rub the loins with spirits of turpentine. We have heard of arsenic being given for this complaint, but do not know the proper quantity for a dose.

"NATIVE BREEDS OF FOWLS."—S. J. W., Utica. All our domestic poultry, except the turkey, was introduced from the Old Continent. It is not, therefore, proper to say they are "natives" of this country. We presume the expression "native breed," frequently used in reference to fowls, means nothing more than the common "dung-hill" stock, which are of no particular breed, though very good fowls are sometimes found among them.

SAGE.—D. B. R., Southeast, N. Y. The Shakers prepare sage for market by first drying it thoroughly, then grinding it in a mill, and then bolting or sifting it. We do not know what kind of mill is used for this purpose. The usual mode of cultivating sage is to sow the

seed in a bed, and when the plants are fairly up, transplant them into good ground; setting them in rows two feet apart, and the plants at spaces of ten to twelve inches in the row. The leaves are gathered from time to time, as they reach their full size, and are carefully dried in the shade.

SIDE-HILL PLOW.—P. C., Cavendish, Vt. The side-hill plow which received the premium at the trial of the New York State Ag. Society in June 1850, was Bosworth, Rich & Co's., Troy. Its price is \$7. Prouty & Mears, Boston, Ruggles, Nourse & Mason, Worcester, and Eddy & Co., Union Village, Washington county, N. Y., manufacture side-hill plows, the prices of which are from \$7 to \$9.

CORN-STALK CUTTER.—J. C. C., Cornellville, Pa. One of the best machines we have ever seen for cutting corn-stalks, is Wheeler's. It may be worked either by hand or horse-power, and will cut and mash the largest stalks with great despatch. Its price rigged for horse-power, is \$27. It is for sale by Wheeler, Melick & Co., and Emery & Co. of this city.

"BROWN CORN."—H. R., Geneva. The "Brown corn" is an eight-rowed variety, of reddish color. It receives its name from a man who cultivated it and brought it into notice, who resided on an island in Winnipissiokee lake, New Hampshire. It is a productive kind, of medium earliness; but we are not aware of any experiments having been made which would show its yield in comparison with other good kinds. It can be had of Joseph Breck & Son, Boston, and might probably be obtained through Emery & Co., of this city.

KINDS OF GRASS FOR MUCKY LAND.—H. R. Red-top and Timothy would be about as good varieties as you could sow. Timothy can be obtained in almost all parts of the country. Red-top can be had of Emery & Co., at \$1.62½ per bushel, for northern seed, and \$1.25 for Jersey and southern.

EGYPTIAN GOOSE.—S. P. T., Winsboro, S. C. This bird belongs to a different genus from any other goose. Martin observes that it constitutes one of the links between the *Anatida* and the *Grallatores* or waders. Its size is less than that of the common goose, and it is chiefly kept on account of the beauty of its plumage and its singular habits. Its Greek name, *Chenalopex*, signifies Fox-goose, indicative of its resemblance to the fox in cunning and vigilance.

SPOKE-MACHINE.—L. C., New-Paltz, N. Y. The machine about which you inquire, was invented by ALLEN GOODMAN, Dana, Worcester county, Mass. There is one in operation in this city, owned by Mr. WEMPLE. It appears to be an excellent machine. It takes the spokes in the rough, and brings them out entirely finished, except to be smoothed, which is done by holding them on an emery roller.

CRANBERRIES.—"Subscriber," De-Witt, N. Y. We gave an article in our number for December last, page 403, which comprises the best information we can give you on the points of your inquiry.

STUMP-MACHINE.—One of the best machines of this kind which has ever been invented, is Hall's, described in our volume for 1845, p. 27. It is worked by three men and a boy, with a horse. With this force, it will extract any stump. Its cost, rigged with chains, levers,

and all apparatus for working, is \$300 to \$400, according to size. The charge for pulling stumps is 15 to 25 cents each. For particulars address R. Hall, Owego, N. Y.

MOTT'S AGRICULTURAL FURNACE.—R. C. G., Randolph county, Ga. The price of this article of the capacity of 40 gallons is \$18—for 45 gallons \$20. For sale by Emery & Co., Albany.

"DOW'S WINTER PIPPIN."—W. A., Canajoharie. We know of no apple by this name.

GILMORE'S APIARY.—A letter received from Philadelphia, requesting information in regard to the report of the committee who examined this article at the late State Fair, has been mislaid. If the writer will give us his address, the information called for will be immediately forwarded.

KILLING ALDERS.—W. J. B., Bethmont, N. C. The last of August is considered the best time to cut alders, for the purpose of destroying them. Performed at this season, the operation has generally been successful. More or less will generally sprout the next year, but if the sprouts are bruised off at the same time in the year that the previous cutting was done, the extirpation will be pretty much accomplished.

TALL OAT-GRASS.—This grass has been tried in some instances in the eastern and middle states. It grows well on loamy or lightish soils, but its quality is not very good, either for pasture or hay. We have not heard of its being cultivated in the southern states.

CHILIAN OR PERUVIAN CLOVER.—The plant we have seen under this name, is not "identical with Lucerne." We are not sufficiently acquainted with the former to give an opinion as to its adaptation or value for this country, neither can we tell where the seed can be had.

GARDENING IMPLEMENTS.—J. S. M., Drummondville, C. E. A box of gardening implements can be had of Emery & Co., Albany. The price is \$16. The same amount of money laid out in a selection of other tools, will bring more value.

MICHIGAN SOD AND SUBSOIL PLOW.—J. C., Freehold, N. J. The proprietor of the patent for this plow is Newell French, Rome, N. Y. The plow is for sale by Emery & Co., Albany.

BLACK-WALNUT LUMBER.—J. W., Berrien Springs, Mich. We learn that good black walnut planks are worth \$30 per thousand, board measure.

NEW PUBLICATIONS.

HARPER'S NEW MONTHLY MAGAZINE.—The number for January 1851, contains many interesting articles, with several handsome engravings—the whole executed in the usual fine style. It is not surprising that this magazine, when we consider its cheapness and high value, should have reached, in the short period of eight months, a circulation of over 50,000. Three dollars a year or twenty-five cents a number, each number containing 144 pages octavo. HARPER & BROTHERS, New York.

LOSSING'S PICTORIAL FIELD-BOOK OF THE REVOLUTION.—We have received No. 10 of this beautiful work. Its interest as well as its superior typographical execution, is fully kept up. It ought to be in every family in the

United States. Published by HARPER & BROTHERS, New York, at twenty-five cents a number, each number containing forty-eight large octavo pages. The work will be completed in about twenty numbers.

PHRENOLOGICAL JOURNAL.—This publication has been enlarged to quarto size, and in addition to information on the subject of Phrenology, there are departments for Physiology, Mechanics, Education, and general Miscellany. The work is beautifully got up, and has numerous illustrations executed in a superior style. It is published monthly by FOWLERS & WELLS, 131 Nassau street, New York, \$1 a year.

EIGHTH ANNUAL REPORT OF THE AMERICAN INSTITUTE.—This is a neatly printed volume of 544 pages, from the press of C. VAN BENTHUYSEN. It contains the proceedings of the second Congress of Fruit Growers, (1849,) and several other valuable papers.

THE HOME JOURNAL.—This delightful journal enters upon the new year in a new and beautiful dress, and shows an increased and wonderful activity on the part of its Editors, in catering for the public taste. It has several new features, which no one but N. P. WILLIS could sustain; and is altogether unique in its whole tone and character. It cannot fail to have a "great run." Enclose \$2, to MORRIS & WILLIS, 107 Fulton st., New York, and its Nos. will greet you weekly for the coming year.

"Flax Cotton."

The English papers announce the discovery of a mode of preparing flax for the manufacturer, by which the slow and wasteful process of steeping or rotting is entirely superseded. In connection with this discovery, another of still greater importance has been made, which is thus described by the London *Morning Chronicle*:—"M. Claussen has succeeded in manufacturing the unsteeped flax into various descriptions of material, which possess respectively all the warmth of wool, the softness of cotton, and the glossiness of silk—and which so closely resemble these several fabrics, both to the eye and the touch, that we should neither credit the fact ourselves nor task the faith of our readers by the assertion, had we not before us actual samples of the results produced, exhibiting in one and the same bundle of fibres, the raw flax at one end and the quasi-silk or cotton at the other." The same paper further remarks, "that the process employed, like that used in the preliminary preparation of the raw material, is exceedingly simple and inexpensive. The cost of converting the unsteeped flax into cotton, amounts, we understand, to no more than seven sixteenths of a penny per lb."

The difference between the price of flax when thus prepared, and that of raw cotton, is estimated as "from one-third to one-half in favor of the former." Another remarkable fact connected with these discoveries is, that "the same invention which dispenses with the operation of steeping, renders the flax suitable for a process which adapts it to the cotton mill." It is stated that the "flax-cotton" has been tried at Manchester, and the paper before named, thus speaks of the result:—

"The cotton spindles took as kindly to the new ma-

terial as if it and they had been expressly made for each other. With a very slight alteration in the machinery—which, however, will not required hereafter—it did its work perfectly; and on Saturday night we were shown the fruits of the invention, in the shape of a quantity of rovings and yarns of unimpeachable quality and color, in a state of perfect readiness for the further processes of weaving and manufacture."

New-York State Agricultural Society.

Annual Meeting.

The Society convened in the Assembly Chamber at 12 o'clock on Wednesday the 15th of January, 1851, the President, E. P. PRENTICE, Esq., in the chair.

The roll of members having been called, the Secretary of the Society, B. P. JOHNSON, Esq., read the report of the Executive Committee. The report presents an encouraging view of the operations of the Society for the past year, and flattering prospects for the future.

The report of the Treasurer, LUTHER TUCKER, Esq., was read and accepted. The receipts for the year amount to \$15,316 91, of which \$10,465 61 were the avails of the State Fair—the disbursements \$12,903 84—balance on hand, including silver plate, paid for, for premiums not yet presented, \$2,643 07.

Mr. GEDDES moved that a committee of three from each judicial district—to be selected by the delegates from each—be appointed to report the names of officers of the society for the year, and to recommend a place for holding the next State Fair, which being agreed to, the committee retired, and at 4 o'clock, P. M., reported the following list of officers for the ensuing year:—

President—JOHN DELAFIELD, of Seneca.

Vice Presidents—William Buel, Monroe; Silas M. Burroughs, Orleans; Lewis G. Morris, Westchester; Anthony Van Bergen, Greene; Augustus L. Clarkson, St. Lawrence; Henry Wager, Oneida; Benjamin Enos, Madison; Ray Tompkins, New York.

Corresponding Secretary—B. P. JOHNSON.

Recording Secretary—J. McD. MCINTYRE

Treasurer—LUTHER TUCKER.

Executive Committee—Ambrose Stevens, John B. Burnett, M. G. Warner, Josiah W. Bissell, Benj. B. Kirland.

These officers were unanimously elected.

The committee recommended Rochester as the place for holding the next fair.

Mr. PARDEE, of Wayne, offered a resolution requesting the executive committee to make application to the Patent Office for copies of its reports and for choice seeds, for distribution among the county societies—and to procure a larger than the usual number of copies of the Transactions of the American Institute, for like purposes.—Agreed to.

Mr. L. F. ALLEN, of Erie, proposed an amendment to the constitution of the Society—providing that the payment of \$10 shall secure a life membership, instead of \$50 as heretofore.

Mr. KERSE, of Essex, seconded the motion.

Gen VIELE, of Rensselaer, opposed it.

Mr. MORRIS, of Westchester, proposed a modification, to the effect that the moneys raised from this source be invested—the income only to be applied to the objects of the society.

This was opposed by Mr. L. F. ALLEN, and lost.

The question was taken and the proposition was adopted by more than the constitutional two-third vote—8 only voting no.

On motion of Mr. MURRAY, of Otsego, a committee of three was directed to be appointed to procure, if practicable, a reduction of tolls on draining tile.

The PRESIDENT appointed (the mover declining to be of the committee) Messrs. S. M. Burroughs, Luther Tucker and B. B. Kirtland.

Mr. NOTT brought forward the subject of Mr. Comstock's discoveries in regard to the principles of vegetation—and moved that a committee of five be appointed (of which the President should be one) to confer with Mr. C. and report to the succeeding meeting of the Society, or to the Executive Committee—who were to take such action as they might deem necessary.

Mr. L. F. ALLEN sustained the proposition—

And after some remarks from Mr. BECKMAN in regard to the principle which Mr. Comstock claimed to have discovered, but which Mr. B. thought he had only reduced to successful practice,

The resolution was adopted—and the

PRESIDENT appointed Messrs. Nott, Downing, Van Bergen, L. F. Allen and Prentice, as the committee.

Adjourned to meet at the Agricultural Rooms, to-morrow morning.

THURSDAY, JAN. 16.

The Society met at the Agricultural Rooms agreeably to adjournment, and after the report of several committees were read, adjourned to meet at the Assembly Chamber at 7 o'clock, P. M. At the time appointed, the President, E. P. PRENTICE, Esq., called the Society to order, and after the announcement of the awards of premiums, introduced A. J. DOWNING, Esq., who addressed the Society, in a very able, interesting, and appropriate manner.

At the conclusion of the address, Hon. J. P. BECKMAN offered a resolution of thanks, accompanied by a request that a copy of the address be furnished for publication.

The retiring President then made some interesting remarks in regard to the financial condition and general prospects of the Society, which were shown to be highly encouraging, after which he introduced the President elect, JOHN DELAFIELD, Esq., who, in a few observations signified his acceptance of the office to which he had been elected.

After some discussion in relation to the establishment of an Agricultural School and Pattern Farm, the Society adjourned.

AWARD OF PREMIUMS.

BUTTER.—1. Ela Merriam, Leyden, Lewis co.,.....\$15
2. Joseph Cary, Albany..... 10
Special premiums to Nelson Van Ness, Chautauque, and Noah Hitchcock, Jr., Cortland co., for very fine samples.—Vol. Trans.

Roswell L. Colt, Esq., New Jersey, presented a pot of Butter made from the milk of Alderney cows, which was pronounced in flavor and quality superior to any Butter exhibited before the Society; having the peculiar characteristics of the Butter produced from this celebrated breed of dairy animals.

Thanks of the Society and Diploma, were tendered to Mr. Colt for this choice sample of Butter.

WINTER WHEAT.—1. Wm. Hotchkiss, Jr., Lewiston, Niagara

co., 64 bu. per acre,.....\$20

2. S. L. Thompson, Setauket, L. I., 42 bu. 1 peck,..... 15

3. Justus White, Pamela, Jefferson co., 40 bu. 2 pecks,..... 5

INDIAN CORN.—1. Peter Cispel, Jr., Hurley, Ulster co., 100 bu.

1.32 per acre,.....\$20

2. Robert Eells, Oneida co.,..... 15

Squire Foster, of Hillsdale, had 97 18.32 bu. on one acre, but as

the regulations required two acres no premium could be awarded.

John Bisse, of Pamela, Jefferson co., had 575 bu. by weight and

500 by measure, on 8 acres 9.10ths of land.

OATS.—1. H. B. Bartlett, Paris, Oneida county, Potato Oats, 88

bu. 14 qts. per acre,.....\$15

2. George H. Eells, Clinton, Oneida co., 87 bu. 3 qts,..... 10

3. H. B. Bartlett, Paris, Oneida co., common oats, 84 bu. 21 qts, 5

E. M. Bradley, East Bloomfield, raised 83 bu. 7 qts. per acre.

BARLEY.—1. E. M. Bradley, East Bloomfield, Ontario co., 53

bu. per acre,.....\$15

2. E. R. Dix, Vernon, Oneida co., 44½ bu., sup. rior quality,.... 10

3. Wm. Baker, Lima, Livingston co., 47 14.48 bu. per acre

(quality not equal to Mr. Dix's),..... 5

PEAS.—1. E. M. Bradley, East Bloomfield, 41½ bu. per acre,....\$10

2. Mr. Rapalje, Rochester, "Early Kid" Peas, fine speci-

men,.....Vol. Trans.

BEANS.—Asahel R. Dutton, Meredith, Delaware co., 30 bu, 20

qts. per ac e,.....\$10

POTATOES.—1. Quality: H. B. Bartlett, Paris, Oneida co., 304

bu. "Western Reds,".....\$15

1. Quantity: Nathan Taft, Pittstown, Rensselaer co., 325 bu., 15

RUTA BAGA.—1. Valentine H. Hallock, Northeast, Dutchess

co., 1,015 bu. per acre,.....\$10

CARROTS.—1. E. Risley & Co., Fredonia, Chautauque co., 951½

bu. per acre,.....\$8

2. N. Hayward, Brighton, Monroe co., 431 bu. per acre,..... 6

CALIFLOWERS.—John S. Goold, Albany; Lewis E. Smith, Half-

moon.—Vol. Transactions to each.

TOBACCO.—1. M. G. Warner, Rochester,.....\$5

TIMOTHY SEED.—1. Robert Eells, Oneida co.,.....\$5

2. George H. Eells, Oneida co.,..... 3

MANAGEMENT OF FARMS.—1. Premium: Rawson Harmon,

Wheatland, Monroe co.,.....Silver Cup, value, \$50

2. D. D. T. Moore, Watervliet, Albany, co., do do 30

3. E. M. Bradley, East Bloomfield, Ontario co., do do 20

David Coonradt, Brunswick, Rensselaer, co.,.....Trans.

FRUIT.—Apples—largest and best collection.

1. W. H. Rogers, Wayne co., (34 varieties) silver medal and Di-

ploma.

2. N. Hayward, Brighton, Monroe co., (27 varieties,) vol. Down-

ing's Fruits and Diploma.

3. R. Hardy, Ogden, Monroe co., (25 varieties,) vol. Downing's

Fruits.

4. Peter Patterson, of Moscow, Livingston co., vol. Transactions.

5. J. W. Bailey, Plattsburgh, Clinton co., (21 varieties,) vol.

Thomas' Fruits.

To Luther Hagar, Plattsburgh, E. M. Badley, East Bloomfield,

M. J. Pardee, Palmyra, Wm. Newcomb, Pittstown, E. P. Prentice,

Albany, Chas. Lee, Penn-Yam, E. Yeomans, Walworth, E. C.

Frost, Chemung, each a volume of Downing's Fruits.

To David Emery, Ithaca, J. H. Wats, Rochester, John Donelan,

Greece, J. Johnson, Brighton, H. Hardy, Ogden, H. Hooker, Ro-

chester, H. D. Adams, Brighton, E. Darrow, Greece, R. H. Brown,

Greece, C. J. Ryran, Rochester, each a copy of Thomas' Fruits.

To Dennis Clark, Palmyra, Joel Hall, Marion, Eli Barnum, Wal-

worth, D. Tomlinson, Schenectady, H. B. Bartlett, Paris-Hill, Henry

Vail, Troy, Wilson, Thorburn & Teller, Alb., David Coonradt, Bruns-

wick, W. P. Coonradt, Brunswick, E. G. Stearns, Gorham, Stephen

Hyde, Palmyra, Henry Powis, Seneca county, each a copy of Nor-

ton's Elements of Scientific Agriculture.

PEARS.—Best collection: 1. Henry Vail, Troy, vol. Downing's

Fruits; 2. R. G. Pardee, Palmyra, vol. Thomas' Fruits.

GRAPES.—Best collection: 1. Joseph Cary, Albany, vol. Downing's

Fruits; 2. R. G. Pardee, Palmyra, vol. Thomas' Fruits.

FOREIGN FRUITS.—F. R. Elliott, Cleveland, Ohio, for a collection

of apples, vol. Transactions.

WINES.—To Miss Goodrich, Burlington, Vt., for six varieties of

domestic wine—currant, gooseberry, elderberry, &c.—small silver

medal and copy of Norton's Scientific Agriculture.

To James Stoddart, Palmyra, for a specimen of white wine manu-

factured from a seedling grape resembling the Black Cluster, a copy

of Downing's Fruits.

To George Vail, Troy, for a specimen of wine from Isabella

Grapes, a vol. Thomas' Fruits.

MODELS OF FRUITS.—A beautiful collection of models of fruit, con-

sisting of apples, pears, plums, cherries, nectarines, &c., was pre-

sented by Townsend Glover, Fishkill-landing, for which a silver

medal and diploma were awarded.

NOTES FOR THE MONTH.

ACKNOWLEDGMENTS.—Communications have been received since our last, from Townsend Green, C., G. A. Hanchett, Julia E. Hanchet, James H. Alexander, X., William Bacon, Prof. J. P. Norton, C. E. G., H. R., A Subscriber, J. S. Copeland, A. D. W., L. Young, G. J.

BOOKS, PAMPHLETS, &c. have been received as follows: Transactions of American Institute for 1849, 548 pp. octavo, and Random Recollections of Albany and Hudson, from CHARLES VAN BENTHUYSEN, Esq., Albany—Transactions of the Ag. Societies of Massachusetts, for 1849, from WM. BACON, Esq., Richmond—Annual Report of the New Haven Co. (Ct.) Hort. Society for 1850—Nova Scotia Farmer's Almanac for 1851, from C. H. BELCHER, publisher, Halifax, N. S.—Proceedings of the Greene Co. Ag. Society for 1850, from A. MARKS, Esq.—Transactions of the Worcester Co. (Mass.) Ag. Society, for 1850, from J. W. and W. S. LINCOLN, Esqs.

SPECIMENS OF INDIAN CORN FOR THE WORLD'S FAIR.—Among the various contributions from this State to the World's Fair, few, we think, will attract more attention than a collection of varieties of Indian corn, prepared and forwarded Mr. B. B. KIRTLAND, of the Cantonment Farm, Greenbush. The collection embraces seventeen varieties, grown in New York. All of them are shown in the ear, and are arranged like the petals of a flower, around a central point. Specimens of several of the varieties are also shown on the stalk, with the leaves and other parts of the plant, thus presenting a very good idea of the peculiarities of each. The different forms in which this grain is prepared for culinary and other uses, are shown by samples in glass jars, which are placed in the case with the corn. They consist of fine and coarse meal, grits, farina, hommony, starch, oil, &c. The whole arrangement is very neat, and highly creditable to the taste and judgment of the contributor.

AGENT FOR THE WORLD'S EXHIBITION.—GOV. HUNT in his late message, recommends that the Legislature should provide for sending an agent to this exhibition, to take charge of the various articles which may be forwarded by the citizens of this State.

LAWRENCE SCIENTIFIC SCHOOL.—This valuable school, which is attached to Harvard University, embraces instruction in Chemistry, Zoology, Geology, Engineering, Botany, Comparative Anatomy and Physiology, Astronomy, Mathematics, &c. The department of Chemistry is under the direction of Prof. HORSFORD; that of Zoology and Geology under Prof. AGASSIZ; that of Engineering under Prof. EUSTIS. The year is divided into two terms, the first of which commences in August and the second in February. The school enjoys a well-deserved reputation, and receives students from all parts of the country. For particulars apply to Prof. E. N. HORSFORD, Cambridge, Mass.

CROPS IN NEW JERSEY, 1850.—MR. BENJ. SHEPPARD, of Greenwich, N. J., writes us that the potato crop was in most instances a failure; that white wheat was damaged by the rust, so that the crop was comparatively

of little value; red wheat good in quality and quantity; Indian corn below an average yield; oats would have been good, but were injured by the storm just before harvest, which reduced the yield one-third.

YIELD OF BUTTER.—MR. G. A. HANCHETT, of West Stockholm, St. Lawrence county, N. Y., informs us that his dairy of 22 cows, produced last season an average 170 pounds butter to each cow, besides the milk and cream used in a family of eight persons. His practice has been to set the milk in earthen pans, first putting into each pan half a pint of cold water, which he thinks throws up the cream and prevents the milk from souring as soon as it otherwise would. He asks what are the particular advantages of churning the milk instead of the cream—whether it produces more or better butter. Will some one who has had experience with both modes answer?

INCREASED PRODUCTION OF WHEAT IN NEW YORK.—From the best evidence we can obtain, it appears that the production of wheat in this State is increasing. This increase is doubtless attributable in part to the extended cultivation of the grain, by the clearing of new land, &c.; but we think the adoption of improved modes of tillage has been also a considerable cause of this result. A writer in the *Argus* of this city gives a comparison of imports of wheat and flour at the ports of Buffalo and Oswego, and also the receipts at tide water on the Hudson, for the years 1849 and 1850, by which it appears that there was a deficiency in the imports of the latter as compared with the former year, of 141,049 barrels of flour, and 1,073,703 bushels of wheat, while the receipts at tide water for the same years, show an increase for 1850, of 8,102 barrels of flour and 869,987 bushels of wheat; from which it is reasonably concluded "that New York must have made up the large deficiency of about 150,000 brls of flour and 1,900,000 bushels of wheat."

AN OLD HORSE.—GEORGE YOUNG, of Grand Rapids, states in the *Mich. Farmer* that he owns a horse which is forty-five years old. He says he bought the animal in 1825, and that his age was then stated to be fifteen years; that he drove him in a buggy and rode him in this city, (Albany,) for six years, and that for the last nineteen years he has been one of a farm team; that he has still the appearance of a colt, that in 1848 he drove him 240 miles in four days. About nineteen years ago his teeth became so uneven that he could not grind hay well, and his owner had them filed down, since which "he has been able to feed with the youngest horses."

MUSK-RATS.—A correspondent informs us that he is much annoyed with these animals, by their burrowing and injuring the banks of ditches, &c., and he wishes to know what is the best method to destroy them. Will some one give the desired information?

AGRICULTURAL PUBLICATIONS.—EDMUND RUFFIN Esq., of Virginia, in a lecture on the subject of agricultural improvement, remarks, "Notwithstanding all the existing obstacles and difficulties, American agriculture has made greater progress in the last thirty years, than in all previous time. This greater progress is mainly due to the diffusion of agricultural papers. In the ac-

tual absence of all other means, these publications, almost alone, have rendered good service in making known discoveries in the science, and spreading knowledge of improvements in the art of agriculture."

"NOTES ON AMERICAN AGRICULTURE."—The *American Agriculturist* for January last, has an editorial article entitled, "Review of Professor Johnston's Notes on American Agriculture." The article reviewed was published in the *Scottish Quarterly Journal of Agriculture* for July 1850—(not "September" as stated in the *Agriculturist*.) We noticed the same article and gave some extracts from it in the *Cultivator* for October last. By what propriety these "notes" are attributed to Prof. JOHNSTON, we do not understand. Their publication was commenced in the *Q. Journal* for March 1850, and continued through the numbers for July and October. They had the signature "B." We know of no reason for supposing them to have been written by Prof. JOHNSTON, but on the contrary, are satisfied that he is not their author. In the first place the "notes" bear evidence of having been taken as early as 1848, a year before Prof. J. was in America. The writer speaks of having visited the New York markets, "frequently" during the season when peaches were for sale; but Prof. J. was not in the city of New York till January 1850, and he left the country in March following. Again, the writer of the "notes" speaks of having "toiled through" portions of the "far-famed Genesee country in mid-summer." Prof. J. only passed through that county once, on the rail-road, and that was in the month of September. There is much other evidence of the same kind, but this is sufficient for the present.

The series of articles entitled *Village Lectures*, published as original in the *Agriculturist*, first appeared in the *English Agricultural Gazette*.

FRUIT-RAISING IN NEW JERSEY.—Mr. GEORGE W. OBERT, of Pennington, Mercer county, N. J., writes us that he has a peach orchard of 3,300 trees, nine years old, which has borne six full crops in succession. It occupies twenty acres of ground. He states that in 1849, his crop cleared \$6,000. The peach crop in general, was that year destroyed by frost. The orchard is on a high northern exposure, which keeps the trees from blossoming till the spring is well advanced. Mr. O. states that he put out 500 apple trees last spring, of the choicest kinds, and that he did not lose one of the trees. Several of them produced apples the same season.

POTATO DISEASE.—Our attention has been called to an article on this subject published in the *Christian Register*. The writer thinks "the potato rot is not an epidemic growing out of atmospheric influence, but the decline, the *running out* of the vegetable, in consequence of the mode in which it has been propagated." He believes there is a "general law" that "vegetable reproduction without deterioration can take place only from the seed." He observes that if the potato be an exception to this law, it is the only one with which he is acquainted; and adds, "It is believed that no variety of grafted fruit out-lives in full vigor and excellence the possible lifetime of its parent tree." The remedy he suggests for the malady, is to "procure seed from the native potato

of South America, and to propagate a new race from the savage stock." Neither this hypothesis as to the cause of the potato disease, nor the suggestion as to its remedy are new; the former has been discussed at great length in most of the European and American agricultural journals, and shown to be without foundation, and the latter has been extensively tried and "found wanting." We would refer the writer alluded to, to our volume for 1848, pp. 140, 192.

MOTT'S AGRICULTURAL FURNACE.—A subscriber in Georgia wishes to know whether this article will answer for boiling sugar from the sugar-cane. Will some of our correspondents answer the inquiry?

CULTIVATION OF THE CHESTNUT.—A correspondent in Otsego county, wishes information in regard to the best mode of cultivating the chestnut. He has planted the seeds several times and cannot make them grow. We shall feel obliged if some one who is acquainted with the cultivation of this tree, will give us a communication on the subject.

BARLEY TRADE OF ALBANY.—This city is the principal point of trade in barley for the Northern and Eastern States, and frequent purchases are made here for the cities along the coast, as far south as Charleston. The *Argus* gives from official documents the receipts of barley at tide-water for a period of nine years:

1838.....	677,338 bush.	1847.....	1,523,023 bush
1841.....	121,010 "	1848.....	1,548,197 "
1844.....	818,472 "	1849.....	1,400,194 "
1845.....	1,137,917 "	1850.....	1,720,000 "
1846.....	1,427,953 "		

These receipts are stated to be almost entirely sold at Albany. According to the statement here referred to, the actual transactions here, in the crop of 1850, reached 1,330,000 bushels, the aggregate amount paid for which was \$1,008,574, an average of 76 cents on the bushel. The lowest figure paid was 65 cents, the highest 101½.

KINDERHOOK WOOL DEPOT.—We have watched with much interest the operations of this establishment, which has now been in existence for six years. Many prominent and enterprising wool-growers in this State, were desirous that the experiment should be made, of a proper and judicious classification of fleeces, preparatory to making sales, with the hope that greater inducements would thereby be offered for improvements in breeding sheep, by obtaining remunerating prices for wool; also, that by a just discrimination between wool in good and in bad condition, motives would be presented to all wool-growers to put their fleeces in proper order for market, by thoroughly cleansing them before shearing. The success which has attended the efforts of its proprietors, we are pleased to learn has met the expectations of its friends. We learn that about the 1st of December last, one sale was made at this depot to an eastern manufacturer, amounting to over \$100,000. Included in this sale, were some of the finest and best conditioned clips in the United States; and that they were justly appreciated by the manufacturer, is evidenced by the prices obtained, which were for the finest grade 65 cts. per pound; for the next 55 to 57 cts.; for the next 48 to 50 cts.; for the next 45 to 46 cts. Other sales were made of the medium and low grades at from 34 to 45 cts., which nearly exhausted their entire stock received the

past season. Their present supply we are told consists only of such lots as were received late in the fall, and at the time alluded to were not sorted and ready for market.

We are informed that Mr. GEORGE A. MASON of Jordan, Onondaga county, has recently sold the well-known Morgan horse "Major Gifford" to ELI SHELDON Esq., of Penn-Yan, Yates county; also a fine two year old colt by "Genl. Gifford" to Mr. F. W. HEWSON, of the same place. These will prove valuable animals in improving the horses of that fine section of country.

WILD HOG.—A hog which was sent from Smyrna to Mr. CORDIS, of Long-Meadow, Mass., has been running wild in that vicinity for several years, but has lately been killed by a company of hunters, after an uninterrupted pursuit of six days and nights. He had been hunted more or less for two winters previously, and has killed several dogs. We hope his skin will be carefully preserved, as it will furnish a correct idea of the eastern wild boar.

Review of the Wool Market.

Those of our readers who have observed our notices of the wool market for the last eight months will find, that contrary to the views expressed early in the season, wool has advanced to a much higher price than we then anticipated. We are gratified at this result, as it will undoubtedly direct the attention of our farmers to the business of wool growing. No other branch of agricultural pursuits has suffered so much from depressed prices for the last few years, as sheep husbandry. The prices obtained for wool have not been as remunerative as those obtained for butter and cheese; and hence the dairy business in many sections has nearly superseded the growing of wool. This is a natural result consequent upon unremunerative prices for any one article of farm products.

Extensive preparations were made early in the season by manufacturers through their agents, and also by wool dealers, to purchase largely in the country. The opening prices were at a point which left a margin for profit to the manufacturer. These preparations, as is usual in such cases, created a strong and brisk competition; prices steadily advanced, and the activity in purchases continued until the entire clip of the year passed directly into the hands of the manufacturer or dealer; and when those who had been less active sought for their stock, or early purchasers went out to renew their supplies, they were compelled to resort to the principal wool markets to obtain them. The fact was then conceded, that the demand and supply of wool were so nearly equal as to enable the holder, and not the purchaser, to name the price.

Wool has now reached a price which, it is believed, will fully remunerate the grower; and we can see no good reason why it should not remain so, while the rather short supply continues, and the money market remains easy as at present. This state of things will, undoubtedly, be unfavorable to the present prosperity of the manufacturer, unless his goods should advance beyond the ruling prices of the past year. The advance in wool will, however, aid him in obtaining an improved price for his goods, as that advance is not confined to the U. S. but is realized to an equal extent in Europe. Judging from the present state of the wool trade both in this and foreign countries, and from the prospective supply and demand, we hazard the opinion that the wool growing business in the U. S., for the next few years, will be as remunerative as any other branch of agricultural pursuits.

WOOL MARKET—January 20, 1850.

The market was very active throughout the month of November, and early part of December and prices advanced on all medium and low grades. The stock of domestic fleece being very much reduced, the market has been less active during the early part of the present month—though prices were fully sustained. There is now more activity and a farther advance is noticed. Woollen fabrics continue low, but prices are firm, with a fair prospect of an advance; which result is much desired by the manufacturers, who say they are working "too close to the wind." We quote,

Am. Saxon fleece.....	48 to 55
Full blood Merinos.....	44 to 47
1/2 to 3/4 do	40 to 43
Native to 1/2 do	35 to 38

Premiums to Agents of the Cultivator.

As an inducement to greater exertion on the part of those disposed to act as Agents, the following PREMIUMS will be paid, in Books, or Implements or Seeds, from the Albany Agricultural Warehouse, to those who send us the largest number of subscribers for 1851:

1. To the one who shall send us the greatest number of subscribers to THE CULTIVATOR for 1851, with the pay in advance, at the club price of sixty-seven cents each, previous to the 20th of March next, the sum of FIFTY DOLLARS.
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8. A copy of Thomas' "AMERICAN FRUIT CULTURIST," price one dollar—a very valuable work—or any other dollar book—to every Agent who sends us fifteen subscribers and \$10, and who does not obtain one of the above prizes.

LUTHER TUCKER.

Albany, N. Y., Jan. 1, 1851.

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Aug. 1, 1850—1yr.

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Feb. 1, 1851—11

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